THE FARMERS' CABINET,
AND

AMERICAN HERD-BOOK.

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC AFFAIRS.

Perfect Agriculture is the true foundation of all trade and industry.—LIEBIG.

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For the Farmers' Cabinet.

Charcoal as a Fertilizer.

MR. EDITOR,—Did our farmers, particularly those who are obliged to clear their lands of timber before they can plant them, know what an immense and almost imperishable source of wealth they have at hand, it appears to me that our wooded lands would be seized upon with an avidity that could only be equalled by the progress of the use of steam.

Charcoal, as a fertilizer, is not surpassed by any thing yet known to chemists. It possesses powers which, if farmers would avail themselves of them, would save a vast deal of labour and expense. It possesses the power of condensing within its pores—and it is an extremely porous substance*—both carbonic acid and ammonia; two substances of the highest value to all agriculturists. No manure is useful to the farmer, unless it yields carbonic acid and ammonia; it is for these that he uses manure; and there is no decaying vegetable that does not yield them; they are constantly floating about in the air in greater or less quantities, and every storm of rain or snow brings them to the surface of the earth. Every manure heap in the land gives forth volumes of these gases, unless it is prevented by some means employed for the purpose. Those farmers who place their manure in heaps in the field until it is well rotted, lose the greater part of these invaluable substances by such means. Manure in a state of decay, will gasify, every thing that can be done to the contrary, notwithstanding. Therefore if we have not something at hand to prevent these gases from flying off to the woods, swamps, marshes, or other fields, we must sustain the loss. Charcoal possesses the power, singular as it may seem, of *sucking in*, if I may be allowed the expression, these gases, and holding them until such time as a growing plant in contact with it, may want them. What a source of wealth is this! When every wind, every rain, every snow, manures the farmer's land, year after year, without any other trouble or expense on his part, than applying once and once only, finely pulverized charcoal in proper proportions, and furnishing lime and a comparatively small proportion of potash to all those plants that need a hard and strong

* For this purpose the charcoal of *soft woods* is, if any thing, preferable to that of hard woods, while the ashes of hard woods is preferable to that of soft woods.

stalk, and potash with a small proportion of lime, to all other plants.

Upon the subject of charcoal possessing the power of condensing ammonia, permit me to give a few quotations from Dr. Liebig's great work on Agricultural Chemistry; speaking of the property of clayey soils and soils that contain iron, of absorbing ammonia, he says: "Soils therefore which contain oxides of iron and burned clay, must absorb ammonia, an action which is favoured by their porous condition; they further prevent the escape of the ammonia once absorbed by their chemical properties." "The ammonia absorbed by the clay or ferruginous oxides is separated by every shower of rain, and conveyed in solution to the soil. Powdered charcoal possesses a similar action, but surpasses all other substances in the power which it possesses of condensing ammonia within its pores, particularly when it has been previously heated to redness. Charcoal absorbs ninety times its volume of ammoniacal gas, which may be again separated by simply moistening it with water." *De Saussure.*

He is here speaking of ammonia alone; but when carbonic acid is present in the charcoal, the ammonia enters into chemical combination with it, and forms carbonate of ammonia; and as charcoal possesses the power of holding carbonic acid, even when moist, and as water does not destroy its chemical properties as long as the charcoal holds it, it also holds that which is in chemical combination with it.

In another place, while speaking of the source of carbon and nitrogen, he says, "It must not, however, be left unmentioned, that common wood charcoal, by virtue of its ordinary well known properties, can completely replace vegetable mould or *humus*." "Plants thrive in powdered charcoal, and may be brought to blossom and bear fruit, if exposed to the influence of the rain and the atmosphere." "Charcoal is the most indifferent and most unchangeable substance known; it may be kept for centuries without change, and is therefore not subject to decomposition. The only substances which it can yield to plants, are some salts which it contains, amongst which is silicate of potash. It is known, however, to possess the power of condensing gases within its pores, and particularly carbonic acid. And it is by virtue of this power that the roots of plants are supplied in charcoal exactly as in humus, with an atmosphere of carbonic acid and air, which is renewed as quickly as it is abstracted."

An important consideration here presents itself; this highly valuable substance—charcoal—"may be kept for centuries without change, *and is therefore not subject to decomposition.*" Soils, therefore, once well supplied with this article, will never again need an application, unless that supply has been removed from them by some unusual means. This is a gratifying circumstance, for though it may be somewhat expensive at first to get it and place it in the soil, we have reason to think we will never have it to do over again.

Liebig also says: "Charcoal in a state of powder, must be considered a powerful means of promoting the growth of plants on heavy soils, and particularly on such as consist of argillaceous earth."

It would appear from a quotation already made in this communication, that vegetable manures to a certain extent, may be dispensed with altogether—the plants depending for their carbonic acid and ammonia on the supplies given to the charcoal by the atmosphere and the rain and snow. This looks at the first glance, like supporting the theory that plants can grow without manures—a theory which, it appears to me, could have originated only in minds that were short of comprehension—but a little reflection will show that such is not the case. It must not be forgotten that I have used the expression *vegetable manures*, not saying anything about the alkalies. As most vegetables do not give sufficient alkalies to plants, but supply carbonic acid and ammonia, and as these substances under certain circumstances are supplied in sufficient quantities by the atmosphere, it will be seen that so far from the plants growing without the manure, they have a constant and proper supply of the substances yielded by manure when the soil in which they grow has a proper proportion of pulverized charcoal. All that plants need under such circumstances for their healthy and productive growth, is the right kind of alkalies and in right quantities.

Care should be taken that the charcoal be well pulverized, for it has been ascertained that during the process of burning the wood to get it, the openings of the pores become closed by a vitreous matter—probably caused by the fire melting the silicate of potash—and thus deprive it of the power of absorbing gases. By crushing it other openings are made, which unless the charcoal is again subjected to fire, will not become closed.

Charcoal possesses another property, which, in cold soils, is of great importance, namely, that of absorbing heat, and thus furnishing warmth to the soil—this it does by virtue of its *black colour.*

In consequence of charcoal possessing the power of absorbing carbonic acid, it is a

preventive of the *rot in potatoes*. This it does by absorbing the extra quantity of carbonic acid, which is highly infectious, and, unless its power is destroyed in some way, diseases the plants. Any person who so desires, can satisfy himself of the fact that charcoal possesses this power, by referring to the letter of R. L. Pell, of Pelham Farm, Ulster county, N. Y., to Hon. H. L. Ellsworth, dated December 18th, 1844, and published in the Report of the Commissioner of Patents, page 241.

It may as well be mentioned, that as charcoal possesses the power of condensing ammonia, it would be an excellent thing to use about stables, &c. By always keeping it dry, after it has absorbed all the ammonia it will absorb, until you wish to apply it—to the wheat plant for instance just after it has blossomed, a valuable end may be gained, as the wheat plant may then have the kind of manure it wants, just at the time it is most needed for the purpose of forming gluten.

To prove the position I have taken in the foregoing, that charcoal is highly useful to farmers, I select the following article from a newspaper which has recently come into my hands. It shows conclusively, that experience fully sustains the theory.

"*Value of Charcoal.*—From the following experiments in the use, this year, of *charcoal* on wheat lands, its value will be duly estimated. Field No. 1—20 acres, 50 bushels of coal per acre, 25 bushels of wheat per acre. No. 2—4 acres, no coal, 5 bushels per acre, and badly rusted. No. 3—15 acres, 50 bushels of coal, 25 bushels of wheat to the acre. No. 4—25 acres, 50 bushels of coal, 35 bushels of wheat to the acre. No. 5—15 acres, 25 bushels of coal, 25 bushels of wheat. No. 6—8 acres, no coal, 5 bushels of wheat. No. 7—6 acres, no coal, 3 bushels of wheat. The soil and culture were precisely alike, and the grain was sown in April and May. The soil abounds in lime and organic matter. The coal costs $30 per 1000 bushels, ground in a common bark mill."

CHEMICO.

Wilkesbarre, Nov. 1st, 1845.

From the Farmer and Mechanic.

The Plough in the Garden.

TEN years experience in this country has convinced me, that an entirely different system of gardening should be pursued to that of Europe. In England, those who employ good gardeners, have generally a noble estate, descended from their ancestors, and together with it, an abundant income, to keep the estate in first-rate order. Here, where fortunes have to be acquired, generally by personal industry and perseverance, it is not to be supposed that proprietors under these circumstances will be so lavish of expenditure. It appears to me then a mistake to lay out grounds after the plan of English proprietors. The first expense may not be grudged, but the after expense of keeping the place in repair *is always so*. I believe brother gardeners will bear me out in the assertion, that in nine cases out of ten, there is an unwillingness to allow sufficient help, or means, to keep places in anything like order, either in England or here. The consequence is a disgust, rather than pleasure, on the part of both gardener and employer.

To obviate these difficulties, then, I would propose, that the vegetable garden, at any rate, should be without box-edgings and gravel-walks, and so situated as to be easily worked with a plough, cultivator, &c.—a square or oblong is always best in form—and instead of the old fashioned four-quarters and subdivisions into beds, and alleys, for each kind of vegetable, let there be a continuous row of each, the whole length or breadth of the garden, sown or planted, say two and a half feet apart, and worked with one horse and cultivator, or plough without mould-board—a garden so worked will be found profitable, the bulk of the work being done by a farm labourer, it gives the gardener a little more time and opportunity to attend to the multiplicity of other matters that must not be neglected, and which occupy an immense amount of time, care, and attention, seldom noticed by his employer.

The objection to the plough in the garden on account of want of depth, is happily done away with, now that we have the subsoil plough—a plough that ought to be much more general in use. I noticed some fine ones at the Fair.

I know that gardeners generally have a prejudice against the plough in the garden, and till within a few years, I was among the number—but I can tell them, from five years experience with the plough, that it is far the easiest, most expeditious, and quite effectual; I raised good crops, and spent by far the most pleasant five years service in my life—pleasant, because by means of the plough, I could get crops in season, and my work always *before* me. Very respectfully yours,

G. K.

Newark, October 14th, 1845.

PEACH WORM.—A sharp penknife, or a sharp wire is the best preventive for the worm. The insect insinuates itself under the *bark* of the tree, where ordinary poisonous applications will not reach it.

For the Farmers' Cabinet.

Indian Corn Sown Broadcast.

The cultivation of Indian corn sown broadcast, as a substitute for grass or hay, having been mentioned in the last number of the Farmers' Cabinet, I thought it might be useful to some of your readers, to refer them to two articles on the subject, in that useful miscellany, the American Museum, long since published by the late Mathew Carey.

The first is by Mr. St. John de Crevecoeur, Consul for Louis XVI., at New York, before the French revolution; see vol. 2nd, p. 449. The second is by the late A. C. Duplaine, vol. 9th, p. 253. This last gentleman was also French Consul in Philadelphia, but in the commencement of the French revolution, and made his experiment, as he told me, in a lot in Kensington, to his entire satisfaction, about the year 1790. He also informed me, that Samuel Powell, then President of "The Philadelphia Society for Promoting Agriculture," having heard of his experiment, paid him a visit in company with Timothy Pickering, then Secretary,—and the first one of the Society. J. M.

Philadelphia, Dec. 19th, 1845.

Letter of John Jones of Gum Bush.

The following letter from St. George's Hundred, New Castle county, Del., is taken from the Transactions just published, of the Agricultural Society of that county, and will be read with interest on account of its straight forward, matter of-fact, business like character. The writer is well known in Delaware, and by the readers of the Cabinet, as one of our most enterprising farmers—and we cannot but wish that his success may equal his energy.—Ed.

To the Committee on Farms of the New Castle Co. Agricultural Society.

Gentlemen,—In competing for the valuable premium offered by the Society for the best farm, taking into consideration the former and present condition of said farm, I proceed to give as correct a statement as my memory and a few notes taken from time to time will permit.

On the 4th of March, 1834, I removed to Wheatland, which I had purchased of J. A. Bayard, on a credit of ten years, in 1832. This part of the farm, which contained about 360 acres, is situated on Bohemia Manor, partly in St. George's Hundred, New Castle county, and partly—about 30 acres—in Cecil county, Maryland. It was very poor at that time, having always been rented, from the first settlement of the country—which, by the grave-stone of the original proprietor, Augustine Herman, was in 1669—till the time of my purchase.

Wheatland, previous to my purchase, contained 524 acres, nearly all of which was tillable, there being no wood or other waste land upon the farm. It had always been worked upon the three-field system, one of which was planted with corn; wheat was then sown in the standing corn after the fodder had been gathered, then after the wheat came off the stubble was pastured one year, without having any clover or other grass seed sown; the next year it was again planted with corn, and so on, with that impoverishing course; for which a fixed rent was demanded of 700 bushels of corn and 125 bushels of wheat—no oats were allowed to be sown. The 700 bushels of corn, at the present price of 40 cents per bushel, would amount to $280; the 125 bushels of wheat, at the present price, 90 cents, would be $112 50; together, $392 50, and this for the farm before any was sold off; but reduce it to the ratio of the present size of the farm, say about one-third off, and you have a rent of $260, out of which the repairs were to be paid. Such was the exhausted state of the land, that it scarcely paid six per cent.—after deducting for repairs—on $4100, the amount of purchase money that I was charged with.

For several years I got but poor returns for my labour, not having the means or energy to improve, till 1837. In that year I concluded to run my face, and make an effort towards improvement with lime, and up to 1839, I had put on about 12,000 bushels, at a cost at the kilns of 20 to 22 cents per bushel. By 1840, I had seen and felt the good effects of the lime, and determined to complete the first dressing of all my arable lands, as well as my Cote Brilliant Farm—better known as Gum Bush—of 380 acres, which I had also purchased at a credit for less than $8 per acre, and was situated near by, as Wheatland, my homestead. In that year—1840—I purchased 10,000 bushels of lime at a cost of 17 cents per bushel, delivered at the landing of the canal, distant about four miles from the farms. Here I again had to run my face, but this time I went to the lime burners on Schuylkill, where I would advise all honest Delawarians that have not limed, to go at once, for to this day honest Delaware faces are in good repute there. They are no repudiators. And while on the subject of lime, I will state that one lime burner, William Mogee, has sold in New Castle county, within the last six months, 145,000 bushels of lime, of which 90,000 bushels have been delivered.

Previous to 1840 I had sown clover and other grass seeds pretty freely, one year as much as 45 bushels, and the same year I

purchased 20 tons of plaster. At first I got but poor return even for my lime, I suppose for want of vegetable matter, but when my clover had grown so as to make a swarth or lay for turning under, my crops began to increase even beyond my expectation. The crops for the year 1844, which closed with my late wheat crop, were all got out and sold by the 25th of July, 1845, producing the following results:

Oat crop light—not many sown—crop sold for $209—rental share	$104 50
Corn tillage large—97 acres, including an orchard of 4 acres, not well tilled, produced 3,000 bushels — rental share, 1,500 bushels, at 40 cents,	600 00
The wheat crop amounted to 2,820 bushels, exclusive of brock or rakings—the rental share one half, or say 1,410 bushels, at 90 cents,	1269 00
	1973 50
This was grown on two fields, one of which of 97 acres, a clover lay well turned under, produced 1872 bushels, exclusive of brock, which would have made this field amount to over 20 bushels to the acre.	
Add 64 bushels of brock, at 90 cts. per bushel,	57 60
	$2031 10

The other field of wheat contained about 60 acres. The product of this field was 948 bushels, exclusive of rakings; or had they been included, the yield would have exceeded sixteen bushels to the acre. This field had been hard cropped, for the wheat followed corn, which corn had followed wheat stubble of the year previous, without manure or clover. Indeed this field had produced nine crops in twelve years, with but little manure at any time, it being farthest from the farm-yard, and my plan is never to haul manure to the far side of the farm, whilst I have poor land near by. The principal help this field has had was 40 bushels of lime to the acre, put on in 1838, and two crops of clover turned under, and on a part of the field a crop of oats was turned under that had been injured by the hail storm of 1840.

The rental value of these three crops of oats, corn and wheat, may then be set down at $2031 10, the usage of this part of the country being one half of the grain for rent. In the upper Hundreds, near the manufactories, an additional amount in money would be obtained for the privileges of dairy, poultry, eggs, &c.

The rental value, as above set forth, you will perceive at a glance, now pays an interest of six per cent. on a capital of $33,850. The original cost of the farm, or investment was, as you will also perceive, $4,100; and that a credit. I will leave you, gentlemen, to calculate the yearly dividends on the investment.

The cost of the 40 bushels of lime having long since been reimbursed by the increased crops previous to this year, the amount of which has just been set forth, I have some profits or proceeds from this farm in the way of raising stock, dairy, &c., some of which is exhibited this day, and has been every year, but one or two since the existence of this Society, the value of some of which I find by turning to some memorandums. I will give you one entire leaf.

May 11th, 1844.—Mrs. Jones has this week made and printed 48 lbs. of butter. The trouble is the want of a near cash market. Our part of the country being strictly agricultural, there are but few others than producers to consume our butter, even in our little villages; consequently it will not command ten cents per pound cash, we being too remote from market—more than twenty-five miles from the manufacturing and consuming district of our county, where on the first of the month butter brought twenty-five cents cash in the market.

The stock from which this butter was made, consists of eight cows, all *natives of Delaware*, calved and raised by myself, on Wheatland. I give their ages and names, according to seniority:

No. 1, Black Maria, calved May 8th, 1833, —last calf, January 2nd, 1844.

No. 2, Yellow Flower, calved June 10th, 1836,—last calf, June 8th, 1843.

No. 3, Sun Flower, calved April 22nd, 1839,—last calf, March 16th, 1843.

No. 4, Cora, calved June 28th, 1839,—last calf, April 19th, 1842.

No. 5, Cauliflower, calved May 26th, 1840, —last calf, March 29th, 1843.

No. 6, May Flower, calved May 8th, 1841, —last calf, May 9th, 1843.

No. 7, Blossom, calved June 19th, 1841,—last calf, February 4th, 1844.

No. 8, Cherry, calved June 23rd, 1842,—last calf, April 17th, 1844.

Making 6 lbs. each per week, at an average of 44 weeks, four days each from calving. These cows had been well wintered and just turned out on a splendid field of clover.

I find one other memorandum that should have preceded the above; but here it is:

June 4th, 1840.—Commenced milking Yellow Flower three times a day, with the view of ascertaining the amount of milk and butter she would give per day, for one week, from the 4th to the 10th of June, inclusive.

Days.	*Morn.*	*Noon.*	*Evening.*	*Quarts.*
1	9	8½	9	26½
2	8½	8½	9	26
3	8	7	8	23
4	8	8	7	23
5	8	8	9	25
6	10	8	7	25
7	10	9	7½	26½

On Monday, the 7th, we churned the two first day's milkings, and the yield in butter was 4½ lbs., equal to 2¼ per day, or 15¾ per week. The weather being so warm—the thermometer standing at 93—we declined further trial at this time, believing, as we did, that it would not be doing justice to the cow to press the trial while it was so warm as to prevent the cow from feeding as she ought.

May 3rd, 1844.—This day, on my return home from the Baltimore Convention, accompanied by two neighbours, Joshua Clayton, Esq., and Dr. J. S. Naudain, we found Mrs. Jones preparing to weigh the butter of one day's milking of Yellow Flower. The result was 1 lb. 2 oz. and the weight of two cents. Upon our all taking a drink of the butter milk, Dr. Naudain declared there was butter enough in the milk to have made up the full quarter.

The milk of this cow was measured for several days together, with about the same results, yielding about 14 quarts per day; she was milked only twice each day in this trial—morning and evening; and as 14 qts. per day was the amount of milk from which this trial of butter was made, we did not think it worth while to incur the trouble of continuing the churning. I was led to this experiment by seeing a statement in the April No. of the Farmers' Cabinet, of the extraordinary cow of Mr. Frost, of England. She having made one and a half pounds of butter each day for four years. The Yellow Flower had then been giving milk about four years, or since the birth of her second calf, Cauliflower, and at the time of this trial was about eleven months from calving, having had her last calf 8th of June, 1843; consequently she may be supposed to be in her lowest stage of milking. She has always been an annual calver, and always milked well up to calving on two other occasions. I have seen Mrs. Jones milk and measure, and each time she gave 16 quarts per day.

Thus you see her lowest milking may be put down at 14 qts.
Her greatest milking when fresh, 26 "
Her greatest yield of butter, 2¼ lbs.
Her lowest yield of butter, 1¼ "

Averaging 1 lb. 10 oz. per day. Consequently at the head of the list of any stock in this or any other country or nation.

She is still at the pail; but was much injured by driving up over twenty miles each way, with a full udder of milk, in less than half a day, to the last Exhibition, and will, I fear, never give as much again. The drive caused *prolapsis uteri*, with other injury.

I have brought in this memorandum about the stock, as a part and parcel of the products of the farm; or, as the butcher would say, a kind of fifth quarter, and if we were near the manufacturing districts of the Brandywine or the city of Wilmington, this branch of our mixed husbandry would be fully up to a fifth of the whole product, particularly when we take into calculation the calves, milk, butter, pigs, &c. Enough has been written to show that the rental proceeds of the farm, by good management, will now, at the present depressed prices of the products of the farmer—owing to the abundant crops—yield a rent equal to the interest of one hundred dollars per acre, and yet we are but in our infancy, just waking up from a Rip Van Winkle nap, in regard to agricultural improvements. Our crops of corn are less than 40 bushels per acre, our wheat less than 20, and other crops in proportion, whilst from some improved spots of land, of the same natural good quality, 100 bushels of corn have been produced, 50 bushels of wheat—hay, and every thing of the ground suited to the climate in the same proportion. These results have been attained at the cost of only ordinary good tillage, with a rotation of crops and a dressing of not exceeding 50 bushels of lime, which can be had now at this point at 13½ cents per bushel, and I presume on any landing on the tide water, on either side of the peninsula formed by the Chesapeake and Delaware Bays, for an average of three cents per bushel additional, and most, if not all the land of equal good quality with our own, in addition to which the average distance of all farms scarcely exceeds four miles from tide water. With all these advantages for the improvement of our land, and the market for our produce, from our proximity to the eastern manufacturing districts and our own home market, shall we stop our improvement here, or shall we—not only we of Delaware, but our friends of Maryland, too—go on shoulder to shoulder, as we did

on a former and more perilous occasion, improving our soil until we make our lands produce more than the virgin soil of the far West! and shall we not also lend our best efforts to create and continue a good and constant home market!

JOHN JONES.

For the Farmers' Cabinet.

Composting.

MR. EDITOR,—In the Philadelphia Agricultural Society's Memoirs, an account is given of Judge Peters' experiment in the decomposition of tussocks, aquatic grasses, and weeds, which I consider interesting, and very well worthy the attention of my brother farmers, who ought to pay more regard to the composition of manures, and not depend so much on those that are purchased at such a distance from home, as would warrant a man in hiring help for the purpose, and save team labour. He says, "I composted the openings of the ditches of a water meadow, consisting of tussocks, aquatic grasses, and weeds, a heap amounting to sixty-two loads, beginning with a layer of tussocks, then a layer of hot muck from the stables, then leaves and wood-soil, until the heap was sufficiently high, strewing plaster on each layer, very little thicker than I should have done on a crop. This was done in autumn, and in the spring I turned it over and mixed with it a quantity of *slaked lime*, when in the next fall, it was in excellent order for top-dressing."

Now I would observe, here was a whole year consumed in the process of decomposing vegetable matter, that might, in my opinion, have been expedited so as to come into use early the spring following, and which, if spread at that season, would have made just the gain of a summer in the crop—a difference worth contending for.

I beg to say, I had once a rough piece of heavy land adjoining my farm, from which I pared off the surface about six inches deep and composted it, first turning with the plough the foundation for the heap, on which *hot lime from the kiln* was spread, and upon that sods were thrown to the thickness of about a foot, then lime and sods alternately, until the heap was five feet in height, finishing by carefully covering the top and sides of the heap with sods to prevent the escape of the heat. In a very little time the whole mass was smoking like a volcano, and it required pretty constant attendance to keep the cracks well covered with sods and beating them down; the heat being intense, and quite sufficient to destroy all animal, as well as vegetable life, at a blow—the sods, and the bugs and their progeny. Here was a valuable mine, which was worked in about two months, by turning over and breaking the lumps, which however required but little labour, the caustic nature and heat of the lime having destroyed the *woody fibre*, according to the books; and in two months more, in February, it was carried abroad on the mowing land, principally a dressing for young clovers, as fine as ashes, and much in appearance and smell to soaper's waste.

Now I guess the difference between the Judge's cookery and mine, was this—I used caustic, or fresh-burnt lime, and he, that which had been slaked; the one expediting decomposition, the other, retarding it, which made just all the difference in the world, and gave me an extra ton of hay per acre, while the Judge's pie was cooking. And while in his case the lime may be considered to have operated upon chemical principles alone, I am satisfied that in mine the process of decomposition was accelerated in a very great and important degree by the *mechanical* action of the heat—as it might be termed—evolved during the slacking of the lime in the mass; after which it remained to afford all the benefit to be derived from its *chemical* character, as in his experiment. We all know the utility and advantage of hot water over cold, in preparing decoctions and infusions, and it is only to carry the idea into our compostings to perceive, I think, the reasonableness of the supposition. Z.

IRRIGATION.—The editor of the *American Agriculturist*, speaks of having visited last summer the Insane Hospital at Worcester, Mass., where he was informed by Dr. Woodward, the superintendent, that among his patients there was one who was ambitious to farm upon his own plans. "At length the Doctor good humouredly yielded to his importunities, and gave him possession of a field in rear of the hospital, on which to expend his eccentricities. The field was in grass, and the surface of it slightly descending from the rear of the buildings. Near the sides of these he constructed little ponds into which he drained the water from the roofs, and the urine from the water closets—let it stand and well amalgamate a few days, and then he conducted this liquid, quite evenly, by means of narrow, shallow ditches, over all his field. The result was, that it yielded six cuttings of grass, of about one ton per acre; making six tons per acre, during the first season! So much for a crazy man's farming."

IT is said that a farmer can neither afford to keep poor cows, nor cows poor.

Smithfield, London.

Character and Quality of Stock.—The quality of the cattle exhibited in Smithfield market, of sheep in particular, is extraordinary for its fatness. The show of the Smithfield Club, which is held in December, under the patronage of some of the first noblemen in the kingdom, may very properly be denominated a show of monstrosities, in the way of fatness. They are moving elephantine masses of flesh, and if, as according to modern chemical philosophy, all fat is the result of disease, they are far from being attractive to any but the grossest epicure. No advantage can come from rearing animals to such an inordinate degree of fatness, save in the matter of showing what the art of man can accomplish in respect to the animal economy, and also that of testing the nutritious and fattening qualities of different kinds of food.

In respect to the weight of the animals in Smithfield, an individual familiar with the subject, and in whom I have great confidence, states that the beasts from two to three years old, will average from 85 to 100 stone of 8 pounds, or from 680 to 800 pounds, when dressed—that is, the four quarters. Others place it not higher than 82 stone, or 656 pounds; of calves, 150 pounds; of pigs, 100 pounds; of sheep, 90 pounds. Calves are seldom sent to market under six or eight weeks old; and large hogs are never seen in the market. If we may rely upon ancient authorities, within a century past the weight of animals in Smithfield market has nearly doubled; perhaps more than doubled. It is said that, in 1710, the average weight of beasts was 370 pounds; of calves, 50 pounds; of sheep and lambs, 28 pounds. This increase of size is probably attributable in the main to two great causes, which deserve serious consideration. The first is, the improvement of the breeds of cattle. A person has only to go into Smithfield market to remark the perfection to which the art of breeding has been carried, and the distinctness of the lines by which the different breeds are separated from each other. Three great points seem to have been gained. The first is, great size and weight have been attained; the second is, the tendency to fatten, and to keep in fat condition, has been greatly cultivated; the third is, that the animal arrives early at maturity. All these are most important points; the last certainly not least; for if an animal can be brought to the same size and weight, without doubling the expense, at eighteen months old, that he could formerly be made to reach not sooner than at three years of age, the quick returns, so essential in all commercial transactions, are secured, and as the expenses are lessened, the profits are greatly increased. Nothing strikes one with more surprise than to see what, in the improvement of the appearance and constitution of the stock, intelligence, skill, and perseverance can effect. I may here with propriety quote what my friend, before referred to, says in relation to the quality of the stock in Smithfield. "I fear many of our breeds of beasts and sheep are becoming worse than they were, from an excessive attention to neatness and symmetry of form, so that bulk and quantity of good flesh have been too much overlooked. Our Hereford beasts are much inferior to what they were; also other breeds of beasts; and particularly some breeds of sheep. Some persons are so very particular about purity of blood, that they often run into great error; their stock losing flesh, constitution, and size. This is particularly observable in Leicester sheep. So wedded are some persons to this breed, and to what they call purity of blood, that their sheep keep dwindling into very insignificant stock. I am satisfied that we cannot go on breeding in and in, without losing size, quality, and worth." I give these opinions of a very practical man, as familiar with the Smithfield market as any man in England, without endorsing them, and leave them to speak for themselves.

The second great cause of the improvement of the stock in Smithfield market is, the improvement of the husbandry of the country, particularly by the introduction of what is called the alternate husbandry, and the cultivation of green crops. The cultivation of turnips and swedes is comparatively modern; and perhaps no single circumstance has effected so great an improvement in the agricultural condition of the country. Formerly, cattle were fatted, if fatted at all, upon grass and hay, and these of inferior kinds; the store stock were wintered upon straw, and came to the spring in such a condition that the greater part of the summer was required, in order to recover what they had lost in the winter. Now, the introduction of the artificial grasses, clover, and rye-grass, the growing of vetches, rape, turnips, swedes, carrots, and mangel-wurzel, and the use of oil-cake, have multiplied in an extraordinary manner the resources of the farmer; and the practice of folding his sheep, and stall-feeding his fatting beasts, give him a command of feed, and, and, if I may so say, such a control over the season, that the results are most re-

markable in the supply of the market, at all times of the year, with animals of the finest description.

I may be inquired of, what I think of the English meats. The fatness of the beef and mutton is most remarkable. I have seen single beasts in the United States as fat as any I have seen here; but these are comparatively rare exceptions; and here the general character of the beasts and sheep is, in this respect, most striking. It would, however, I fear, be hopeless to attempt to persuade an Englishman of that which is my honest conviction—that our meats are sweeter to the taste than those which I have eaten here. Our poultry is incomparably better. An Englishman will be likely to set this down as mere prejudice, which possibly it may be, for who can escape such prejudices, or be fully conscious of them when they exist?—but I believe it is not prejudice, but Indian corn—the grain upon which our animals are fatted—which gives to their meat a peculiar sweetness, which is not produced by other feed. Our beef animals are not killed until five to seven years old, and our sheep seldom until three years old. Here sheep are killed at about fifteen months, and beasts at two years and upwards. The flesh of these young animals is wanting in that consistency which more age would give, though an extreme on the other side, and the hard-working of our oxen until eight and ten years old, are liable to give a toughness to the meat, which would not be found if fatted at an earlier, though not a very early, period. If price is to be taken as a correct index of quality, then it will be found that the beef of the small West Highland cattle, and the mutton of the Welsh sheep, are decidedly superior to any other, the prices which they command being always higher than others. The smaller size, and the better intermixture of lean and fat meat which they present, render them more convenient for family dishes, and more attractive than those immense rumps of beef, and saddles and legs of mutton, covered with an inordinate thickness of fat, which, by their grossness, repel any but the most inveterate epicure—the animal who seems to live only to eat.

My conviction is, that there is no agricultural improvement in England so great and striking as that which has been effected in their live stock: I refer particularly to its size, aptitude to fatten, early maturity, symmetry, and beauty. Of the milking and dairy properties of their stock, I shall speak hereafter. I must include, likewise, in my commendation, their horses—working, carriage, pleasure, and race-horses. It could scarcely be expected to be otherwise. The highest degree of skill has been concentrated upon these objects; and this skill has been stimulated by premiums of the most honourable and liberal character, and by expenditures absolutely enormous. The splendid and magnificent premiums of gold and silver plate for successful competition, which one sees on the tables and side-boards of the fortunate winners all over the country, and which are exhibited with an honest pride, while they display the highest triumphs of artistical skill and taste, serve only to fan the flame which they enkindle, and to quicken an ambition which never can be quiet while a more distant point remains to be attained. How happy would it be for the world, if human ambition were always directed to objects so innocent and commendable; to purposes which benefit, instead of those which curse, the world; to the triumphs of genius, industry, and science, over the elements of nature, instead of the bloody conquests of power, avarice, and despotism, over human comfort, liberty, and life!

Smithfield by night.—Smithfield by night, and in a dark night, presents a most extraordinary scene, which, though I have witnessed it, it would be very difficult for me adequately to describe. A large proportion of the stock arrives in the neighbourhood of London either on Saturday or early on Sunday, where they are fed in the fields, or the extensive lairs prepared for their reception. These lairs, especially Laycock's, at Islington, are well worth a visit, being composed of open yards and most extensive sheds, covering fourteen acres of ground, furnished with watering troughs and mangers, and divided into different compartments. Here the farmer or drover is supplied with hay or straw for his stock, not by the day or night, but by the truss, the hay which is sold in London being always put up and tied in bundles of 56 pounds each—certainly an excellent arrangement, which, while it prevents all temptations to waste, requires a purchaser to pay only for that which he has. The cattle here get a little rest and refreshment in these stalls after their long journeys; and here they are visited by the salesmen preparatory to their appearance in the market on Monday. It would not be surprising, likewise, and not altogether unlike some occurrences on the other side of the water, if some purchasers, with an acquisitiveness not disturbed by religious scruples, should occasionally make their way there and anticipate the bargains of the ensuing day.* About midnight the different detach-

* "I will say, however, by the way, and as an act of

ments, almost treading upon the heels of each other, begin to make their way to the place of rendezvous through the winding streets of this wilderness of houses, and enter the great market-place by different and opposite avenues, and, like hostile parties, often meet each other in the very centre. Then comes the conflict: the driving of so many thousands of sheep into their several pens; the assorting and tying up, or arranging, so many thousands of cattle, driven into a state of terror and frenzy by the men and dogs; the struggles of the different owners or drovers to keep their own, and prevent their intermingling with others; the occasional leaping the barriers, and the escape of some straggler, who is to be brought back by violence; the sounds of the heavy blows over the heads, and horns, and sides, of the poor crazed animals; the shrieks of the men; the yelling and barking of hundreds of dogs, who look after the sheep and cattle with a ferocity perfectly terrific, and a sagacity almost human; the bellowing of the cattle, and the bleating of the calves; forming, if the expression is allowable, a concert of discordant sounds utterly indescribable and hideous; and in the midst of all this confusion, the darting about of hundreds of torches, carried in the hand by men looking for their cattle and sheep, and seeking to identify their marks—all together present an exhibition for which it certainly would be difficult to find a parallel, and sufficiently gratifying to the lovers of the picturesque in human affairs. The calves and pigs enter the market in a more aristocratic style, in carriages and vans, with the regular attendance of out-riders and footmen; but in spite of this luxury, after the example of some of their betters, these indulgences do not appear to lessen or quiet all their complaints, and they add their portion to the general harmony. Their owners are quite wise to carry, instead of attempting to drive, them; for I think no human power would be sufficient to drive and assort a herd of pigs, coming into a scene of this description. When the day dawns, however, every thing is found in order; all the different parties at their respective posts; and the immense business is transacted with a despatch, an efficiency, and precision, which are quite remarkable.

Attempted removal of the Market from the City.—It certainly is not a little surprising that a market of this description should be held in the midst of such a city as this. Its name implies that, in former times, it was held in the outskirts of the town; but that time must have long since passed away, and the "field," so called, is now surrounded with miles of houses in every direction, and in the very centre of a most densely-packed population. It would seem, at first sight, that the obvious and innumerable discomforts of such an arrangement, and the danger to human person and life from driving so many beasts through the crowded streets, were sufficient reasons for transferring the whole business to a more retired and convenient situation in the neighbourhood of London. A wealthy individual, by the name of Perkins, under the influence of the best of motives, made an attempt to do this, and erected an establishment for a market at Islington, about two miles from the centre of London, which is well worth looking at for the completeness and excellence of its arrangements. The cost of the establishment is said to have been £100,000, or half a million of dollars. It forms a hollow square, and embraces a space of more than twenty acres, completely enclosed by high brick walls, which form the backs of deep sheds, slated, and open in front, furnished with mangers, and with water troughs supplied from two very large tanks in the centre of the yard, which are kept constantly filled by machinery from wells sunk in the neighbourhood. The sheds are capable of accommodating 4000 beasts; and here they might remain from day to day until sold, without inconvenience. In the centre of this immense quadrangle are four extensive squares, all neatly paved with flat stones, and divided into several compartments, railed in with neat iron railings, and capable of accommodating 40,000 sheep. Other pens are constructed for calves, pigs, and other animals usually brought to market; and all are arranged in the most simple and convenient method, with ample passages furnishing easy access to every part of the enclosure. Besides these, there are convenient and ample offices for all the various clerks, salesmen, bankers, &c., connected with the business; and it was designed to erect commodious hotels for the accommodation of persons attending the market, and extensive slaughter-houses for the killing of the cattle, directly in the neighbourhood. The whole space is entered under a handsome archway; and for its particular purposes, it would be difficult to conceive of any thing more commodious or better arranged.

In spite of all these obvious advantages, the market could not be removed from Smithfield. The persons in the neighbour-

simple justice, that London, as well as every other part of England which I have visited, is remarkable for its sober and decorous observance of the Lord's day.

hood of the old market, whose business and profits were intimately connected with it, opposed its removal. There was fear of a rival market being got up on the other side of the city. The city would lose the tolls, which are now received at Smithfield, and which, in the course of the year, make up no inconsiderable revenue. The meat, if the animals were slaughtered out of the town, would, of necessity, have to be conveyed to the city in carts, whereas, now, much of it is killed directly in the neighbourhood of the market. These and many other reasons were urged, but, perhaps, would not have availed, excepting for the fact, that Smithfield was discovered to be a chartered market, for the sale of cattle; and the twelve judges of the high courts decided, upon consultation, that this charter could not be abrogated; and even in spite of an act of Parliament, which was obtained in the case, this great public nuisance must be continued.—*Colman's Ag. Tour, No.* 4.

Agriculture and Commerce.—Professor Wines, in a late lecture in New York, adverted to the prevailing false opinion, which estimates Commerce as comparatively more important than Agriculture. The principal cause of this he supposes to be, that the gains of Commerce, lying nearer the surface, are more open to the scrutiny of the mass of men, while the gains of Agriculture seldom obtrude themselves on the public attention. To prove this, he stated "that Great Britain is decidedly the most commercial nation on the globe. Her trade with the United States is nearly two-fold that which she carries on with any other country. And yet what think you the entire annual movement of this commerce both ways amounts to? About as much as the value of the annual crop of oats and beans in the former country. The whole foreign commerce of Great Britain, in pursuit of which she overshadows the ocean with her fleets, and plants her colonies in the most distant islands, is actually less in value than the annual grass crop in the British islands. The bread stuffs annually extracted from our soil, amount to more than 800,000,000 bushels, and their value is almost triple that of the aggregate exports and imports of the whole country. Our grass crop is worth $150,000,000, which is just twice the value of all the exports to foreign countries. The annual Indian corn crop of Tennessee and Kentucky alone amounts to more than 100,000,000 bushels, and fully equals in worth our exports to Great Britain and France, which constitute the bulk of all we part with to foreign countries. And what is not a little remarkable, the corn crop of these two states is equal in value to the entire cotton crop grown in all the States and Territories of the Union.—*Troy Advocate.*

From the Ohio Cultivator.

Dairy of only one Cow.

Mr. Editor,—I think it very kind of you to appropriate a department in your paper for the use and benefit of the ladies; and for fear you may think they do not appreciate the privilege as they ought, from the fact that they contribute their mite so sparingly, I have presumed to indite a few lines, thinking they may be better than none, about my *Dairy;* for I keep a dairy, although I have but *one* cow—now I think I hear some one say, you had better stop, for you cannot have much to say about a dairy, with only one cow. Be patient friend, and you shall hear what I have to say, and I will promise not to exaggerate in the least.

I commenced making cheese the 3rd day of August. What! make cheese from one cow! Yes, and independent of any one—as I like to be. I had only the milk of one cow. I continued making till the 3rd of November. In that time—only three months—I made 207 lbs. of cheese. During the time, we used what milk we needed for the family; besides that, the calf was not weaned the first three weeks after I commenced.

Perhaps now you may think my cheeses are little hard things; well, they average over 10 lbs. each, and if you want to know whether they are hard or not, you must come and see. Since I have done making cheese, I have made 9 lbs. of butter a week, and it was not weighed with a "shirt on," either. My cow has not been fed on dainties, but has had a common pasturage, and fed a little whey—without any butter on it—and a few pumpkins. Now, Mr. Editor, if you think this worth a place in your valuable paper, its insertion may be the means of bringing you another communication from the

Dairy Maid.

Waterford, Washington co., O., Nov. 1845.

Ammoniacal Salts of Urine.—Plants watered with a simple solution of sulphate of ammonia,—an abundant salt in cows' urine,—are fifteen days earlier than those watered with pure water. Grass land watered with urine only, yields nearly double to that not so manured. In a garden, on land of very poor quality, near Glasgow, urine diluted with water, nearly doubled the grass. But upon wheat, sown upon clay land, it did no good; it injured barley—potatoes grew rank and watery—and on turnips the effects were only half as good as mere unfermented dung.—*Farmers' Mine.*

For the Farmers' Cabinet.

On Subsoiling.

Mr. Editor,—I notice an article in your No. for December, page 153, inquiring for information on the subject of subsoiling. After directing your correspondent to the experience of one of the most successful and enlightened cultivators of this or any other country—Mr. Paxton, of Catawissa, Pa., I would observe, in my opinion, it is after the second operation that the benefits of subsoiling are often to be expected; having more than once had occasion to remark, that no advantage has accrued from a first and single stirring, even when the nature of the subsoil seemed much to require it; owing, I have reason to believe, to a portion of the richness of the surface soil having penetrated the loosened subsoil, which thus becomes fructified at its expense for a season; but I am prepared to believe, that this evil will remedy itself if the operation be repeated, nor should I hesitate to recommend that it be followed as often as opportunity serves. Yet I do not advocate subsoiling merely on the plea of adding depth to the soil; for being one of those who do not consider it necessary or essential to the growth of the plant, that it have a foot or more in depth of rich soil to luxuriate in, conceiving that the roots of all vegetables are divided into those, whose office it is to procure food from the surface soil, and those, whose province it is to draw water from beneath, I would not recommend even very deep subsoiling, except it be under peculiar circumstances, and with the view of its operating mechanically, rather than chemically, on the crop; although I know it has been proposed to drain the soil of superfluous moisture by these means, which would, however, be found quite ineffectual for the purpose. In England, where only the system is scientifically pursued, it is not found to succeed, if the land stands in need of artificial draining.

Not many months since, I saw turned up a piece of clover lay, resting on a very hard bed of gravel that had been carefully subsoiled three years ago, when I found the subsoil as hard as it had been before the operation, and could not but think that it required another stirring as much as at first, when, I have no doubt, very beneficial results would have followed, but the owner "fainted," and has, therefore, no reason to expect to "reap."

To a person who, like myself, believes in the system of top-dressing, the difficulties on that subject, suggested by your correspondent, are easily obviated. I have no idea that the stench arising from a slaughter-house, is food appropriate for the immediate sustenance of plants, any more than I believe it to be lost on evaporation. I consider it, wending its way into the atmosphere to form new combinations—did your correspondent never observe how very different is the effluvia arising from a hot-bed, before and after the escape of the noxious gases, which would have been instant destruction to vegetable life? it has then the smell of mushrooms, and far enough removed from that of carrion. It is an egregious error to consider plants as *gross feeders.*

The Subsoil plough used at the late Philadelphia Exhibition, was of small size, intended to follow in a narrow furrow. If the wing of a Subsoil plough were to be made as wide as a large furrow, it could not be worked with less than four or six horses; but to obviate the objection pointed out by your correspondent, it is only to set the plough deeper, and the subsoil will then be broken as wide as the furrow; the degree of pulverization being in proportion to the depth penetrated. The plough abovementioned is large enough for two horses, and in the hands of a careful and practical man, will be found quite equal to the task of opening any subsoil through which a pair of horses are able to force it.

May I be permitted respectfully to inquire, how it has been ascertained, that the real Jersey parsnip is not well adapted to this country? Is it because it is long, coarse and stringy, in its nature? To a resident of that island this will be news indeed! But the seed has never, to my knowledge, been for sale in this country—at least, after repeated inquiry I have not been able to find it; and it may be well, therefore, to learn that Mr. Coates has the hollow-crowned variety, which is, however, as different as it well can be, from Low's favourite, of which Col. Le Couteur has given full accounts, both as to its mode of culture and enormous product after good tillage.

C. R.

Montgomery co., Pa.

Important Facts for Farmers.

A Question of Bread.—Men have been long investigating truths; and many important truths, as principles, are developed, without being connected with practical purposes, or bringing out facts by application.

Wheat is known to be the most nutritious of all grains, because it contains a larger quantity of gluten. But I do not know that it is generally understood, except by scientific agriculturists, that this quantity of gluten may be varied both by climate and the

character of manure. Yet such is, nevertheless, a well attested fact.

1. Wheat of warm climates has more gluten, is harder, and less easy to grind. The difference between the two, in climates not very distant, may be safely calculated thus:

Warm Climate.		*Cold Climate.*	
Starch,	56. 5	Starch,	71.49
Gluten,	14.55	Gluten,	10.96
Sugar,	8.48	Sugar,	4.72
Gum,	4.90	Gum,	2.32
Bran,	2.30	Bran,	1.
Water,	12.30	Water,	10.00
	98.58		100.49

2. The gluten of wheat may be increased by the character of the manure used, thus:

Wheat, average crop,	Gluten	19. 0
" raised on soil manured with ox blood,	"	34.24
" raised on soil manured with human fæces,	"	33.94
" raised on soil manured with human urine,	"	35. 1
" raised on soil manured with horse manure,	"	13.68
" raised on soil manured with cow manure,	"	11.96

From so much of the above facts as show how far climate varies the quantity of gluten, it results that there is a great advantage in Alabama wheat over the Northern. Now what is this advantage as applied to practical purposes? I will explain.

Two pounds of Cincinnati flour were weighed out, and to it was added one quarter of a pound of yeast. Two pounds of McAlroy's (Alabama) flour weighed, and in like manner was added one quarter of a pound of yeast—both were accurately weighed in the same scales and at the same time, and both made into loaves and baked in the same oven. The result was as follows:—The Cincinnati flour yielded a loaf weighing 3 lbs.—gain 33 per cent. McAlroy's flour yielded a loaf weighing 3½ lbs.—gain 55 per cent.! *The gain in Alabama flour* 22 per cent.! Or, every five barrels of Alabama flour, is equal to six of Northern flour.

But, says one, the Northern flour must be the better, because look at the loaf; it is whiter and lighter. True, but let it be remembered, that this difference with respect to whiteness, is the difference in the preparation and grinding; and that of lightness, is chiefly in the absence of gluten. The quantity of the flour may be effected by the mode of preparation and grinding; but the quantity of the several principles composing it, cannot. The same quantity of starch, gluten, &c., must be retained, whether the wheat be ground in a good or bad mill.—*Exchange Paper.*

The Oaks Cow outdone.

THE famous Oaks cow, whose great product in butter and milk was mentioned in the last number of the Cabinet, appears to have been exceeded by two cows belonging to Dr. Samuel B. Woodward, of Wethersfield, and exhibited by him at the Cattle Show at Hartford, in the year 1830. The following statement was given by the owner, and which I took from a paper of the day.

In May, 110 lbs. 2 oz.; June, 109 lbs. 11 oz.; July, 73 lbs.; August, 80 lbs. 8 oz.; September, 101 lbs. 8 oz.; October, 81 lbs. 12 oz.—total, 576 lbs. 9 oz.

On the 1st of September another cow was added, which including what was made the last week in April, to wit, 21 lbs., would make 597 lbs. 9 oz. in six months.

Besides all this, milk and cream have been sold to the amount of $3, and a family of 16 persons furnished with milk and cream, worth at least $1 a week, at 4 cents a quart, and pork fed to the amount of at least $1. Not a pound of butter was sold for less than one shilling per pound.

Butter,	$100
Milk, &c. sold,	3
Milk used in the family,	26
Pork,	15
	$144

The cows were fed on grass only after the middle of May, before which time they had rowen hay and two quarts of meal a day. One cow is six years old, the other five years—one is half blood Devonshire, the other common stock.

The calves from the three cows sold in the spring for	$15 75
	144 00
Whole product,	$159 75

Upon another occasion, date not preserved, in the account of the Agricultural Exhibition held at Andover, Mass., it was recorded that a cow of Mr. Noah, without any extra feed, other than that obtained from a common pasture, gave, from the 2nd of May to the 22nd of September, 6054¼ lbs. of milk, measuring 586½ gallons, being an average produce of four gallons per day. The milk was of a superior quality. Mr. Osgood's cow gave in the month of June, 17 quarts a day; and there were made from the milk in one month, 50 lbs. of good butter.

Product of cheese.—The following statement I found in a newspaper, the year not recollected. "Israel Cole, of Berkshire, Mass., made this season, 16,000 lbs. of cheese from the milk of twenty-eight cows; being on an average 571 lbs. to each cow. He gives the whey to the cows mixed with meal—doubtless corn-meal."

J. M.

Philadelphia, Dec. 19th, 1845.

Rotation of Crops.

From Dr. Muse's Address before the New Castle County Agricultural Society, on the 18th of Ninth month last.

A QUESTION has been started upon very eminent authority, of the truth of the doctrine of "Rotation," and of that of the "supposed necessity of a change of seed."

One of my predecessors, in this highly honourable station, which I now occupy, the Hon. James M. Garnett, has controverted the truth, or force of this doctrine, in a correspondence a few years past, with the "Albany Cultivator," which lately attracted my attention; and moreover, these sentiments are, to my knowledge, entertained by *many* intelligent farmers, and *therefore* become worthy of a serious notice.

Mr. Garnett adduced as evidence against that doctrine, the universal practice in Accomac and Northampton, Virginia; where, he says, "two white crops of grain, corn and oats, constantly follow each other every year, without perceptible deterioration, as the owners all assert; and without any *return* to the land, except the dead natural growth of the pea." He adds, "in several other parts of Virginia, he has known similar practice and results—and, indeed the growth of *corn alone, without rest* for twenty years—and the crops *undiminished;*" "also, of *garden vegetables*, the *same seed*, in the *same squares*, for eighteen years, unimpaired."

But for this able and highly distinguished authority, I would not hold this question worthy of discussion, before this assemblage of skill and science.

The facts stated, are no doubt correct, but circumstances unknown to him, may have existed, to occasion the *paradox.*

A brief view of this subject may conclude the question and remove the erroneous impression.

Different genera and species of plants notoriously contain different proximate principles, composed of different elementary materials, or different proportions of them—supplied by the *soil*—by *putrescent manures*, and by the *atmosphere*—a truth undeniably established by chemical analysis, as well as obvious to all who enjoy the two natural senses of *taste* and *smell.*

The inorganic portion of the supplies is to be found in the *soil;* and the soil must contain them in quantity and variety suited to the wants of the peculiar species of plant, or the crop will perish: when other plants, wanting other elements of nutriment, may find an ample supply for their growth and maturity.

Though a different base may be substituted, as a vicarious and imperfect agent for the true one, which was absent, yet the plant in such case, will not flourish.

The organic elements are supplied by the putrescent manures and the atmosphere; and come within the scope of the same category, or class of conditions with the inorganic.

But, inasmuch as the *nutriment furnished* and *that appropriated* by the plant, must of necessity, be chemically identical, and different species contain different principles, it follows that one species continued in the same soil uninterruptedly, would consume and exhaust the peculiar elements of its food, sooner than a series of unlike species requiring different elements, or different proportions of them; and consequently, that a change, or alternation of species, is an essential point of economy in general culture, by which a "*quasi repose*," in the interval, is obtained for the recovery of the consumed materials of nutrition before the second series may have commenced: this was a truth known in the days of the Mantuan Farmer, "*sic quoque mutatis requiescunt setibus arva.*"

For example—one groupe—the *leguminous*, as beans and peas require, according to Liebig, but a small portion of the alkalies; the culmiferous, as wheat and oats, require much of the alkalies and phosphates; tobacco consumes much alkali and no phosphates.

From these examples may be deduced a set of principles unquestionably sound, and in accordance with *rotation* and manifesting its necessity.

The climate too must be consulted in the selection of our crops: for instance, the beet is more profitable in a cold climate; this root requires much *nitrogen;* and as Liebig states—the secretion of sugar will be diminished as the supply of this element may be wanting; and, as the last product of animal decomposition is, in *cold* climates, ammonia, which is rapidly converted into nitric acid in the *warmer*, the *alkali* of the plant, will engross the *acid;* and the supply of nitrogen will consequently be deficient, and the saccharine matter therefore not so abundant;

hence a cold is more suitable to the beet, than a warm climate; and as Chaptal has remarked, nitre in such cases, takes the place of sugar; which, he says, is experienced in the Southern and warmer parts of France.

Holding in view these *principles*, the cultivator may mark his course in safety and confidence—he will adapt his crops to the climate and to the chemical and geological constitution of his soil, and he will distribute the alternations in consistence with the established laws, which the God of nature has ordained and conferred on him, the faculty of reason to discover and to apply, for his comfort and convenience.

The subject of manures is too copious for an ordinary address—yet the extensive use of lime would seem to claim for it a passing remark.

Like others, I have used it in various modes and quantities; and I have been convinced that it may be *over-used:* by five hundred bushels to the acre twenty years ago, a plat of six acres of my field was rendered unprofitable for many years, until I had literally buried it with rich earthy and putrescent manures, and it is not now as good as these should have made it.

For the Farmers' Cabinet.

Prouty Plough--Moore Plough.

I was not a little disappointed in perusing the last number of the Cabinet, that the committee on the ploughing match which came off at Westchester in the Tenth month last, had not vindicated themselves from the censure cast on them by *Observer*,—see page 106—for awarding the premium to the *Moore* plough. I have not the pleasure to be acquainted with any of the committee, but certainly they were selected for their experience and good judgment in ploughing. *Observer* palliates their sin, by saying they were unacquainted with the peculiar merits of the *Prouty* plough, and that they valued a good plough according as it made smooth and flat work:—here *Observer* forgets, that if the committee were unacquainted with the peculiar merits of the *Prouty* plough, they were equally unacquainted with the merits of the *Moore* plough, except the work before them, which was a little better than *Observer's ne plus ultra* of the *Prouty* plough; and such too was the decision of the committee on the ploughing match for New Castle county; said committee, in order that they should view the work with an impartial eye, left the ground during the match, and their decision was responded to by the spectators; and since that time, C. P. Holcomb, one of the friends of the *Prouty* plough, has come over and ordered several of *Moore's* plough. It is not a little surprising that Paschall Morris should assign much of the merit of his great crop of corn to the *Prouty* plough, when he before had given us the true cause, viz: that the field was a twenty year old green grass sod; that it was limed seven years since, and from that time pastured;—now who could ask for a better seed bed! or who ever saw such a one with common cultivation, that was cloddy or weedy! Green grass will not grow twenty years on land that is of a nature to be cloddy; and as for weeds, they are not apt to grow from the first ploughing after so long a rest. *Observer* says that the soil is unrivalled, and yet we find that greater crops have been raised by men who had never seen a *Prouty* plough. P. M. and D. W. of Conshehocken, are not like the English farmers that Lord Stanley told an anecdote of, for the latter had a notion that iron ploughs bred weeds, but the former rather think that *Prouty's* plough breeds corn.

Now for a few words on deep ploughing, alluded to by P. M.:—in that case it was of much more importance than what kind of plough was used, for his was a deep soil; but on many soils it would have been madness to plough seven inches deep. Major Cooch, who was one of the most practical farmers of New Castle county, used to say when he was ploughing eight inches deep with four horses, that deep ploughing made poor fathers, but rich sons; his lands not being of that kind that green grass would grow on for twenty years. It might appear from the above that I am unfriendly to Prouty's ploughs; but such is not the fact. I have until lately thought them second to none, and now only to one; but it is this writing up things above their true merits that I disapprove of, for by such methods people are apt to be greatly deceived. For instance, about Rohan potatoes, Sugar-beets, Dutton corn, Tree corn, Baden corn, Berkshire hogs, and Guano; all of which I have tried except the hogs and potatoes. Sometime last spring, one of the correspondents of the Cabinet stated, that lime and plaster put on potatoes before they were covered, would prevent the rot. I tried it on three rows, which yielded seventeen bushels, and I am afraid that they will all rot: one half have been taken out of the cellar rotten, and the remainder look very suspicious. The other parts that were not so treated, are perfectly sound, the seed being the same; yet I do not think that the treatment had any bad effect, but that it was caused by wet weather, that came on before they were dug,

the others being dug before the rains came. Hence I have been confirmed in an opinion before entertained, that the rot was produced by wet mucky weather. About the year 1827, I had a potatoe patch that ran into a spouty soil, and a path crossed it at the commencement of the wet ground, and I was told if the blossoms were picked off the potatoes, the crop would be increased; so I concluded to make a trial; and all the blossoms below the path were picked off as they appeared; the summer was rather dry; no difference appeared in the tops; about digging time it came on wet, and as soon as the ground would admit they were raised, and to my utter astonishment, where the blossoms were taken off there was not one potatoe, so I did not try that trick again; but since, I have found them several times rotten after wet weather. I intend next spring that our tenants shall give Prouty's Subsoil plough a trial; I think it a great invention, and am very sanguine of the happiest result from its use on either wet or dry soils.

S. M. Stapler.

Newport, Del., Twelfth mo., 1845.

Fowls.

To the Editor of the Farmers' Cabinet:—

A writer—R. C.—in your last paper, p. 146, who dates from Beaufort, South Carolina, complains of his fowls not being productive, or of fine quality for the table. From his description I judge they must be a mixture of the large India breed with some other here, also of large size. The Bucks county, and Booby fowls are very large, but do not lay many eggs, and I think their flesh rather coarse grained.

The best breed of fowls that I have seen, are those denominated by me the "Jersey Blues;" having obtained them from New Jersey some years ago. They are of large size, good form, great layers, and as good nurses as any that I have known. I have known pullets of five to six months old, produce eggs. They are the breed from which the large and fine capons are produced, that command such high prices in our markets in February and March, when well fatted; and weigh from 14 to 20 lbs. per pair. They are generally of a glossy black, or mixed a little with grey. Those most admired have their breast and under feathers of a dark stone or ash colour, with black necks and backs—all have dark legs. I have supplied numerous persons here and in other States, and all have been much gratified with them as far as I know.

Yours, &c., Aaron Clement.

Philadelphia, Jan. 2nd, 1846.

For the Farmers' Cabinet.

Convenient Barns--Lime.

To the Editor:

Sir,—A full description of a convenient, large barn, with two floors, to drive over a bridge on the second above the stables, with room for threshing-machine and granaries; and the kind of wood for timbers, would be very desirable. I have never seen a thorough description of a convenient and large barn. To be attached a cattle yard and sheds, and the manner to be put up, and the manure to be preserved.

Lime.—A more elaborate and complete account of the qualities and uses of lime is desirable. Some writers state that its effects are enduring—others that it impoverishes the earth after a short time—and others that its beneficial effects are felt for many years.

It is stated by one, that *this* season is good for it, and by another, *that;* but a Chester county farmer winds up with saying it is good at any, and all seasons. The adverse statements are very great, owing in part to the partial commentaries.

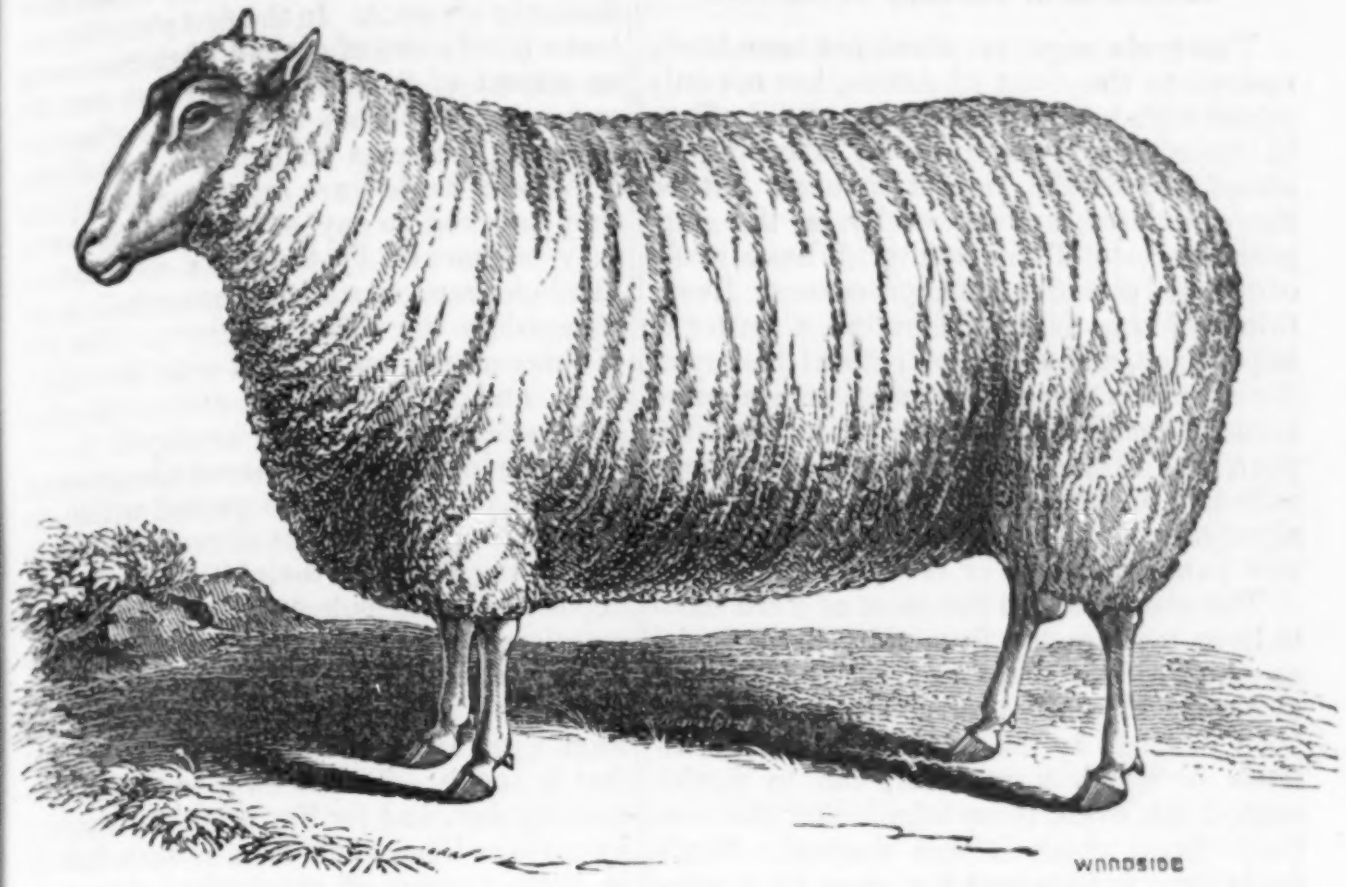
A New Subscriber.

Dec. 23rd, 1845.

We have no description or plate on hand of such a barn as is enquired for. The editor apprehends, if "A New Subscriber" wishes to build a good and convenient barn, he could hardly do better than take a ride with his carpenter among our best farmers and managers, and examine their barn accommodations. If, however, some one will furnish a description and block of a first-rate barn, &c., it will give pleasure to publish it.

It would seem as if our friend had not looked sufficiently into his back volumes of the Farmers' Cabinet, or he would have come across almost every thing, *pro* and *con*, that can be said about the use of lime in Pennsylvania. Any one who has more to say, shall be heard.—Ed.

To get a tight ring off a finger.—The New York Spirit of the Times contains the following directions for accomplishing this sometimes difficult operation: "Thread a needle flat in the eye, with a strong thread; pass the end of the needle with care under the ring, and pull through a few inches towards the hand; wrap the long end of the thread tightly round the finger, regularly, down to the nail, to reduce its size. Then lay hold of the short end of the thread and unwind it. The thread pressing against the ring, will gradually remove it from the finger. This method will remove the tightest ring without difficulty."



PORTRAIT OF THE LEICESTER BUCK, "LAMBERT,"

The property of Aaron Clement, Esq., of Philadelphia.

From the American Farmer.

LAMBERT was bred by Dr. Huddleson, of Delaware county, Pa.,—is three years old, and weighed in March last, when only in good keeping condition, 250 lbs. He produced at last shearing 10½ lbs. of wool of superior quality and length of staple. His grand sire was imported by Mr. James Hickman, of Delaware county, and his dam was from the celebrated flock of the late John Barney, of the State of Delaware, whose sheep were so highly celebrated for their fine mutton in the Philadelphia and Baltimore markets.

The writers on sheep, say that the *Leicester* should have a hornless head, long, small, tapering towards the muzzle; eyes prominent, with a quiet expression; ears thin, rather long, directed backwards; neck full and broad at its base, gradually tapering towards the head, particularly bare at the junction with the head; the neck seeming to project straight from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the pole. The breast broad and full; shoulders broad and round, no uneven or angular formation, no rising of the withers, no hollow behind the situation of these bones. The arm fleshy throughout, even down to the knee. The bones of the leg small, standing wide apart, no looseness of skin about them, and comparatively bare of wool. The chest and barrel deep and round; the ribs forming a considerable arch from the spine; the barrel ribbed well home; the carcase gradually diminishing in width towards the rump; the quarters long and full; the legs of a moderate length; the pelt moderately thin, soft and elastic, covered with a good quantity of white wool, not so long as in some breeds, but considerably finer. The principal recommendations of this breed are its beauty and its fulness of form; in the same apparent dimensions greater weight than any other sheep; an early maturity and a propensity to fatten, equalled by no other breed; a diminution in the proportion of offal, and the return of most money for the quantity of food consumed.

The Natural History of Guano.

The trade in guano, which has been lately opened to the coast of Africa, has not only raised high hopes as to its beneficial effects in improving agriculture, by affording an abundance of the richest manure, but on the commerce, and especially on the shipping interests of the country, it has already occasioned considerable improvement. Every thing relating to it, is therefore, a matter of importance, and even the natural history of the article is something more than a mere matter of curiosity. Its name, it would appear, is of Peruvian derivation, and had been called, in the language of the natives, *Huano*, signifying dung or manure; the Spaniards now name it *Guano* or *Guanar*.

The aborigines on the coast of Peru seem to have used guano from time immemorial as manure; and at the time of the European discovery of the country, strict laws had been enacted by the Incas, to guard the islands in which it is found, and to punish with death even, those who killed the seafowls from which it was derived. Much doubt was entertained for some time after being brought to this country, with regard to the origin of guano; the Spaniards early questioned that which seemed to have been clear to the inhabitants of Peru; but chemical examination, and other evidence, leave it no longer undetermined, that the enormous accumulations of this matter on sea islands, in various localities, are nothing more than the droppings of the myriads of fowls which inhabit them for the purposes of rest and incubation.

Morrell has termed such associations of sea-fowl, "Rookeries," which is the common appellation given to them by the South Sea navigators. His description of one of the Falkland islands is very graphic, and as it is instructive, it is here, in substance, introduced. Those islands extend north and south from latitude 50° 58′ to 52° 46′ S., and east and west from long. 57° 32′ to 61° 29′ W. The feathered tribes, he remarks, are very numerous on the lonely isles in the southern hemisphere, both in the South Seas and in the South Atlantic Ocean. Of penguins there are four kinds which resort to the Falkland Islands, viz:—the King, the Macaroni, the Jackass, and the Rookery penguin; but the most remarkable bird found on those shores, is the penguin's intimate associate and most particular friend, the Albatross.

When a sufficient number of penguins, albatrosses, &c., are assembled on the shore, and a deliberate consultation on the subject has been held, they proceed to the execution of the grand purpose for which they left their favourite element. In the first place they select a level piece of ground, often comprising an extent of four or five acres, as near the water as practicable, always preferring that which is the least encumbered with stones.

As soon as they are satisfied on this point, they proceed to lay out their plan, which they commence by tracing a well defined parallelogram, of sufficient magnitude to accommodate the whole fraternity. One side of this square runs parallel with the water's edge, and is always left open; the other three sides are differently arranged.

These industrious feathered labourers next proceed to clear all the ground within the square from obstructions of every kind, picking up the stones in their bills, and carefully depositing them outside of the lines before mentioned, until they sometimes create a little wall on three sides of the rookery; within this range of stones and rubbish they form a pathway, quite smooth, six or eight feet in width. This is for a general promenade by day, and for the sentinels to patrole by night. The whole area is then laid out in little squares of equal sizes, formed by narrow paths, which cross each other at right-angles, and which are also made very smooth; at each intersection of these paths an albatross constructs her nest, while in the centre of each little square is a penguin's nest, so that each albatross is surrounded by four penguins. In this regular manner the whole area is occupied by these feathered sojourners of different species, having at convenient distances, accommodations for other kinds of oceanic birds, such as the shag, or green cormorant, and another which seamen call the nelly.

The penguin's nest is merely a slight excavation in the earth, just deep enough to prevent the egg rolling from its primitive position, while the albatross throws up a little mound of earth, grass, and shells, eight or ten inches high, and about the size of a water-bucket, on the summit of which she forms her nest.

None of the nests in these rookeries are ever left unoccupied for a single moment, until the eggs are hatched, and the young ones old enough to take care of themselves; male and female alternately relieving one another when in search of food. By this precaution they prevent their eggs being stolen by the other birds, which would be the case if left exposed, but which, nevertheless, must be often done, for it frequently happens that when the period of incubation is terminated, the young brood will consist of three or four different kinds of birds in one nest.

To stand at a distance and observe the movements of the birds in these rookeries is not only amusing but edifying, and even affecting. The camp appears in continual motion, all appear engaged in seeking pleasure, refreshment, or recreation; at the same time the air is almost darkened by an immense number of albatrosses and other birds hovering over the rookery like a dense cloud, some continually lighting and meeting their companions, while others are continually rising and shaping their course for the sea

Sea-fowl in incalculable flocks are observed to congregate for similar purposes everywhere, on the desolate and craggy shores and islands of both the Atlantic and Pacific Oceans; and although the same species of birds are met with in many different latitudes, whose food is alike, and whose droppings can vary little in chemical character, whether this relates to their solubility, fluidity, or solidity, yet, as far as it has been discovered, there seem only very few situations where matter resembling guano, in any quantity, is found. The rocky islands and shores on the Northern and Western coast of Scotland, although they have been no doubt frequented for thousands of years by birds in countless numbers, yet are really known not to have any such deposite upon them, neither does it exist on the lonely islands in the Gulf of St. Lawrence, nor on the rocky shores of North America, in higher latitudes, to which also vast flocks of sea-fowl migrate every season, to rear their young in fancied security, amidst an abundant supply of food, and where vessel-loads of their eggs are collected by visiters, by whom no report has as yet ever been made of the existence of guano. It must be inferred, from the acute and searching talent which Morrell shows for observation, that he would not have allowed the occurrence of guano on the Falkland Islands, or on others equally the resort of sea-fowl, to have escaped him, had it existed. He would have recorded the fact in his description of the South Sea rookeries, and his far-seeing eye would not have failed to discover in mountains of this substance, monuments of production, which, if not of a very pure nature, yet are of more real importance to mankind than what is so often recorded in the annals of other biped republics of higher intelligence, but of much less antiquity. It is obvious, therefore, that peculiar causes exist for the accumulation and preservation of the dung of those birds, in such enormous beds as cover some islands on the coast of Peru, Bolivia, and Africa; and we are not to look for these causes alone in the mere temperature of their climate. Many rocky islands and precipitous shores within the tropics, in full possession of the feathered tribes of the ocean, may have thus at least one physical cause existing without any such accumulation, and this could scarcely occur without being noted by the prying eye of man. In such climates, the heavy periodical rains, uncounteracted by other agency, must dissolve every thing which is soluble of whatever is deposited on the surface of the earth, and what is not so dissolved would be otherwise in all likelihood washed away; the same must occur in temperate and colder climates, where the constant alternations of wetness and dryness, and of heat and cold, must rapidly effect a thorough decomposition, and facilitate greatly the disappearance of all such matters.

If we take a survey of the localities in which guano has hitherto been found in large quantities, we shall find causes in operation which will account for its accumulation.

The seaboard of Peru and Bolivia, from 3° to 22° south latitude, a space of about 1,480 miles in a direct line, is generally of a light sandy soil, never refreshed by a drop of rain, and although the dews are heavy, they seem of little consequence to vegetation. On this coast are the numerous islands upon which take place the large deposits of guano; on the islands of Chincha and Pacquica, according to good authority, the beds are of great depth and the quality exceedingly good, but from the coast of Chili, where rain frequently falls, the guano is inferior. Morrell, who seems to have visited most of those islands on the coast of Peru, makes mention of two islands named Lobos Afuero, and Lobos de Terra; and the latter is in latitude 6° 34′ S., and longitude 80° 45′ W., and has a safe and convenient harbour on the north side, "they are covered," says he, "with the dung of acquatic birds, sufficient to load thousands of ships, having been accumulating for untold ages. It is called *guanar* by the Spaniards, and is probably the richest manure in the world."

If we now turn to the coast of Africa, we shall find from the same author, that Ichaboe Island is covered to the depth of twenty-five feet with guano, and is within one mile and a half from the main, and forty-one miles to the northward of Possession Island, which is in latitude 26° 57′ S., longitude 15° 8′ E.

The south and west coast, from about latitude 16° to 27° south, is a dreary sandy waste, generally destitute of water. The desert in the neighbourhood of Angra Pequina extends into the interior about forty miles, which being traversed, a country is reached inhabited by an inoffensive and civil

race of Hottentots, possessing, as you advance farther, innumerable flocks of cattle, where the land becomes fine and fertile.

About 800 miles of the sea-coast, Morrell says, running north-west and south-east, almost every mile of which was examined by him, presents a range of sandy deserts, upon an average nearly forty miles in breadth. During ten months of the year here, there is scarcely a drop of rain, and for the other two months very little falls. The atmosphere is pure, warm and dry, to such a degree, that a quarter of fresh beef, weighing two hundred weight, hanging in the rigging, will become perfectly dry, without being tainted in the slightest degree, even to the bone.

Thus, to all appearances, there are identical agencies existing on the coast of Peru and Africa, where guano is found of such superior quality and in such wonderful abundance.

For the deposition and accumulation, then, of guano, in any particular locality, it is essential that there should be a sea-coast on which there are numerous isolated rocky situations, where sea-fowl may collect unmolested to hatch their young, and seas in the vicinity supplying abundance of food; warmth of climate, little or no rain, and a perpetually dry atmosphere. Under a terrestial and atmospherical combination of this sort, Dr. M. Hamilton calculates that a million of birds will produce fifteen tons of guano daily, from their droppings, subject to no further loss from evaporation. No mean quantity would thus in a very few years be accumulated in favourable situations, and many such, it is reasonable to suppose, are to be found in both hemispheres.

We can foresee that the stimulus given by the success which has already attended the voyages for African guano, and the idea that the supplies will soon be exhausted, both on the coast of Peru and Africa, must naturally lead to the exploration of new regions, for an article apparently every year growing more and more in request. It will, however, only be by looking to those topographical bearings referred to, that any one can expect to make fresh discoveries of deposits of this substance to an extent which will make them an object of commercial enterprise, or of a quality which will realize the hopes of the farmer.—*Dr. Jackson on Guano.*

The Model Farm of Ohio.

The model farm of this State contains 100 acres, 75 of which are well cleared, and the whole under fence; 60 acres are embraced in one enclosure, and this includes all the arable and meadow land upon the farm. The buildings are all of stone, neat, durable and commodious. The dwelling is not large, but capacious enough for the use of the family and a room and a bed or two for an occasional friend. The kitchen and stables are supplied with water from the same spring. No stock but hogs and sheep are permitted to graze. The cattle and horses are constantly kept in their stalls, and are always in good order. The cows are at all times fat enough for the butchers, and the growing stock at two years old, attain the weight of ordinary steers at four. During the summer they are soiled with green food, consequently twenty acres in grass is sufficient to keep four horses and ten cows with their offspring, until the young stock are ready for the market at three or four years old, when they average him $30 per head. Of these he makes it a point to sell ten head a year. For his stock he raises about one acre of roots, sugar beets, mangel wurtzel, and turnips each year, which yield him on an average about 1500 bushels. Of corn, he cultivates five acres a year, which by proper culture and judicious rotation, yields him 500 bushels. Five acres in wheat give yearly 150 bushels. Five acres of oats, 300 bushels.

He has an orchard of eight acres, in which he has 200 apple trees, 25 pear, 25 plum, 100 peach, and 50 cherry trees. This is divided into four compartments of two acres each. Two of these he ploughs up every year, and in the spring plants them in Jerusalem artichokes. Here he keeps his hogs. In the two that are not ploughed, he has a clover and orchard grass ley, in which the swine feed from the middle of May to the first of August, when they are let into one of the artichoke yards and range at will into the two grass yards, and this till winter, when they are passed into the second artichoke yard, where they are kept till the grass has sufficiently advanced in one of the fields to turn them into that. Thus upon grass, roots and fruit, the swine are kept so thrifty, that a few bushels of grain are sufficient to make them ready for the butcher. In this way he manages to kill thirty hogs a year, which will average 400 lbs. each. He gives them beet wintering.

His sheep range principally in the woods, with a small pasture of five acres. He keeps 75 head, which yield him 300 pounds of wool a year.

As this farmer has raised a large family, and raised them all well, having given each child a good practical education, I was curious to look into his affairs, and as he keeps

a regular account current of his transactions, it gave him no trouble to inform me of the result of his mode of proceeding, which is briefly as follows:

Product of the farm—	
10 beef cattle, average $30 per head,	$300
25 hogs, at $12 per head,	300
200 bushels of corn, at 25 cts. per bu.,	50
Product of sheep,	100
do. dairy,	200
do. orchard,	300
Other and smaller crops,	100
	$1,350
His hired labour cost him on an average per annum,	300
	$1,050

Thus from 100 acres of land, even in Ohio, this man has been able to lay by, and invest at interest, on an average, $500 a year, for the last twelve years. He has now some eight or ten thousand dollars at interest, and his home is a home indeed. Who does better on a farm of 1000 acres? Or who has improved his condition by going west, more than he has by staying here? Of course like others he has suffered somewhat from unfavourable seasons, in some of his crops, but his correct system of culture and intelligent management generally obviate every difficulty which springs from this source, and as his crops are always better than his neighbours, the advance in price more than makes up the deficiency. His system of saving and making manures, turns everything into the improvement of his soil, weeds, ashes, the offal of his stock, soapsuds, bones, and everything that will tend to enrich it, are carefully saved and properly applied.

The history of this man is brief, but to the farmer, interesting. He began with the patrimony of good sense, sound health, and industrious habits. Excellent so far. In 1830 he had six children and $3000 in cash. He bought this farm in a state of nature in 1830, for which he paid $400. He expended $400 more in clearing his land, in addition to his own labour. He first put up a temporary cabin, in which he moved his family. One thousand dollars he put out at a permanent annual interest, and the remaining one thousand two hundred with the earlier profits of his farm, he appropriated to the erection of his buildings, which were complete in 1834. In the selection of his fruit he sought for the best varieties, which always gave him preference in the market. So of his stock. In this he avoided the mania of high prices, and has made up in judicious crossing and breeding, what others seek at great cost in foreign countries. Everything he does, is done well. Everything he sends to the market commands the highest price, because it is of the best kind. In his parlor is a well selected library of some 300 volumes, and these books are read. He takes one political, one religious, and two agricultural papers, and the N. A. Review; refuses all offices; is, with his family, a regular attendant at church, and is a pious, upright and conscientious man. He is the peacemaker in his neighbourhood, and the chosen arbiter in all their disputes; he loans his money at six per cent., and will take no more.

He says he wants no more land for his own use than he can cultivate well—no more stock than he can keep well—more land will increase his taxes; his labour and expenses will be less profitable.—*Ohio Cultivator.*

For the Farmers' Cabinet.

Immigration.

To the Editor:

Dear Sir,—I have occasionally been a reader of your instructive and entertaining paper; well does it merit its title, and long may its proprietor be sustained in his usefulness. I have often thought when perusing its pages, what surprise would Penn manifest could he be permitted to revisit his adopted land, obtained by that equitable and ever memorable treaty with the natives of the forest, and see the magic improvements of art on nature's foundation! Hills have been levelled to plains; forests have been turned into gardens, and *Flora* reigns delighted. The rough paths of former days have been made smooth, and turned into pleasant roads by the devices of Mc Adam; while her beautiful Juniatta and Susquehanna are continually conveying thousands from the Old World onward to the far West. How pleasant are these reflections, if we trace back the wonderful improvements of even but half a century; but a few years since, in my native home, the land of the *pilgrims*, I thought that even Pennsylvania was almost the border of civilization and safe settlement. And now, here, almost two thousand miles beyond, am I reading by the cheerful fire of a Western home, the Farmer's Cabinet, from the City of *Brotherly love.*

There is something more needed, Mr. Editor, in your instructive journal, than merely an exclusive sectional history of home farming. Your people are no longer

content at the old homestead of their ancestors, they are found here, and we are proud of their system and their practices, of which they are so tenacious that they survive even in their adopted homes. Their improvements give cheerfulness and an air of thrift to our country, and to the scenery around, an appearance of contentment.

Under this view of the case, we covet the privilege while we read your Cabinet, to contribute something of our Western farming and management, and something to support our interest and that of those who will continue to come among us. It is to be much regretted, that many among the first and most industrious portion of the eastern population, when coming to this country, have, in selecting a home, merely looked for rich land and its advantages for cultivation, and consequently scattered about and settled in any place, where such advantages were to be obtained. So fascinating is the idea of making a new home in the West, and the mind is so much and pleasantly occupied, that many of the greatest and most important advantages are overlooked and neglected until after the first excitement is worn off, and people are brought to reason by their wants. Now I have seen numerous families and neighbours, who had in their old home been old acquaintances and friends, come into this country together, and instead of settling near each other and forming a neighbourhood of their own, and combining and retaining all their interests, scatter about, at great distances from each other, entirely for the sake of possessing just such a piece of land as pleases them, as though all their interests consisted in such a particular advantage. Let me say to such people, they are not aware how many privileges and pleasures they sacrifice in so doing. Among this community were perhaps mechanics of almost every kind, whose labours would be much needed among themselves. Their little community would have been sufficient to sustain a good school the year round; to have and support religious meetings, &c. The satisfaction of meeting each other as old neighbours, and reviving the reminiscences of early days, is one which must add vastly to the comforts of a new settlement, and should not be slightly given up. But all these advantages and combined interests are often sacrificed with hardly a thought, or reflection, until after the location is made. This state of things is just what is apt to render their new homes wretched and sterile; the excitement of immigration is soon worn off, and the mind turns to its wonted enjoyments and customs; these are not to be obtained—they are broken—they are annihilated; and they are comparatively but few who have the firmness to stand this. They become uneasy and discontented, sell out, and are nearly broken up in consequence. Now, the idea of immigration in itself is well enough,—it is just what political economy requires; especially among the young and the more enterprising portion of the people. But let me as an old friend, advise all, when you immigrate in company with a portion of old neighbours and friends, try to make a settlement together—do not let a little fancy about just such and such a piece of land, separate you. Consider that land alone is but poor company, without some one to help you enjoy it, and to sympathise with you and assist you in affliction and trouble. Remember this too; whoever comes into the West, must of necessity, sooner or later experience some sickness, by way of acclimation; and not unfrequently this is the case in harvest time, and if it should be yourself, the head of the family that is sick, how much will you need your neighbours' help to save your crops; or if it is your wife, how desirable to be within reach of tried friends and neighbours.

A. Stone, M. D.

Lake County, Indiana, Dec. 12th, 1845.

From the Louisville Weekly Journal.

Prof. Morren's Letter on the Potatoe Malady.

M. Morren, after stating that the evil had prevailed in Belgium for several years, though to a far less alarming degree than at present, proceeds:

"The real cause of the evil is a *fungus*, or sort of mushroom, which the learned will classify under the genus *botrydis*—but which agriculturists, without further specifications, will call a spot, a blemish, or blotches. This mushroom is of extreme tenuity, but it breeds amazingly, and reproduces itself by thousands. Its stems are formed of little, straight hollow threads, which bear on their summits one or more branches, always divided into two, and at the end of these branches reproductive bodies are found, which have the form of eggs, but which are scarcely the hundredth part of a *millimetre* in size. It will be said that this is a very small body to do so much mischief; but I answer that the *itch* is not a disease the less to be feared, because the *acare* which produces it can be seen only by the aid of the microscope.

"After the formation of the yellow spot, and the developement of the *botrydis* on the leaf of the potatoe, the stalk receives the deleterious influence. Here and there its epidermis turns brown, blackens, and, following with the microscope the phases of

the evil, you perceive that it is by the rind that the stalk is attacked. The morbid agent carries its action from the rind on to the epidermis, and though this last does not always disclose mushrooms, it is not the less for that struck with death.

"The infection soon descends into the tubercle itself. If the disease follows its course, the tubercle mortifies forthwith. A potatoe is not a root, but a real branch; whence it follows that a tubercle contains a marrow, which is the eatable part to be preferred, and a separate rind; between the marrow and the rind there is a zone of vessels which represent wood. This construction is apparent to any one who chooses to cut a thin slice of potatoe and place it between his eye and the daylight. The infection attacks that part which receives the sap on its descent.

"By following the progress of the evil upon a great number of tainted tubercles, I have been able to see how the evil, by one continuous progress, at length reaches the heart itself of the potatoe, and corrupts the vegetable entirely. The skin of the diseased potatoe comes off easily; the flesh no longer cracks under the knife; a flatulent liquid drips from the potatoe; a musty, and presently an animal smell, analogous to the smell of mushrooms recently cut, manifests itself, and occasions considerable nausea.

"The evil being traced to its source, the cultivator must direct all his attention to the destruction of the fungus, or mushroom, for it is unfortunately but too true that all the parasites of this genus, once introduced into a country, remain there and propagate. This year the epidemic has been general; the germ exists everywhere; millions upon millions of *propagules*, if their numbers are not diminished this year, will, next year, be attacking the plants, and then it will be more difficult to eradicate the scourge.

"It is essential to adopt the following precautions:

"When the leaves are decidedly spoilt, cut down the vines forthwith and burn them on the spot, instead of taking them away.

"When certain varieties or certain localities are free from the scourge at the time of the harvest, it is always prudent to burn the leaves, for a field may appear secure from the botrydis when it is not so; several leaves are attacked; these leaves throw the propagules on to the tubercles, which, if preserved for purposes of reproduction, will spread the plague the following year.

"If the tubercles—potatoes—themselves are attacked, it is essential to separate, as speedily as may be, the tubercles that are tainted from those that are not. Turn the sound ones to account as soon as possible, for they are not noxious so long as the rind does not become yellow. The diseased ones should be burnt.

"As it is probable that the tubercles preserved for seed will be infected with the spawn of the mushroom, it would be advisable for cultivators who can, to procure tubercles for reproduction from places where the present scourge is unknown.

"In case of using for reproduction the tubercles of crops visited by the plague this year, it will be necessary to submit them, previous to planting, to the agency of lime, as is practiced with wheat, and all plants that are liable to invasion by parasitical bodies. The process ought to be by the *immersion* of the tubercles in lime water. Twenty-five kilogrammes—50 lbs.—of lime, a quarter of a pound of sulphate of copper, and three kilogrammes—six pounds—of marine salt, for twenty-five litres—quarts—of water, constitute a preparation, the utility of which, in the destruction of parasite vegetation, has been experienced by a great number of well-informed cultivators.

"In the plantations of the spring of 1846, it is essential to plant potatoes in fields as far as possible removed from those actually infected this year, to avoid the danger from the retention in the soil of the spawn of the fungus.

"The use of lime and of marine salt, with a slight mixture of sulphate of copper, is, as I have already said, of acknowledged efficacy in the destruction of parasite germs. Consequently, to powder over with such a mixture, a soil in which diseased potatoes have grown, is a good operation for destroying in that land the germs of the scourge. The operation ought to be strongly recommended everywhere.

"The storing of potatoes from fields that have been this year attacked by the scourge, in cellars, caves, &c., will certainly be to deposite the spawn of the mushroom in those very places. They should, therefore, before receiving the potatoes, be thoroughly cleaned and scoured with lime; and lime or ground charcoal scattered over the bottom,—and on the potatoes as they are stored—will conclude the series of operations, the most rational and the most certain for destroying, *if possible*, the evil at its root.

"C. H. MORREN,

"*Member of the Royal Academy of Sciences, &c.*

"Liege, August 14th, 1845."

ROSES.—There are three modes, says Buist, within the reach of all for the propagation of garden or June roses—namely, by layering, budding and grafting.

For the Farmers' Cabinet.

Raising Wheat and Cattle.

Mr. Editor,—The strictures on my communication* to General Richardson on farming, by your correspondent H. S., in the last number of the Cabinet,† should pass unnoticed, so far as I am personally concerned, did I not fear that in some degree they might operate injuriously upon the practice of others. While therefore, I am constrained to say a word by way of rejoinder, I disclaim any unfriendly feeling towards H. S., who, I must say, treated my communication unfairly, yet took occasion to pay me a handsome compliment, for which I am bound in courtesy to make due acknowledgment.

I flatter myself H. S. stands singularly alone in the view he has taken, for I never wrote or advanced any thing during my agricultural career that seems to have met with such general favour from all quarters as that communication, as the numerous letters I have received from the most intelligent agriculturists can fully substantiate. Had your correspondent read the article attentively, he could not have arrived at the conclusion, that I had said unqualifiedly, "When land is worth *fifty* dollars an acre, wheat at one dollar a bushel will not pay expenses, advising to *raise cattle* in *preference*." What I said, and what every candid reader must acknowledge I meant to say, was, that such devotion to raising wheat, to the shameful neglect of the cattle, and raising profitable stock, was an ill-judged practice; that on lands that cost fifty to *one hundred* dollars per acre, requiring much manure and care, and where labour was high, wheat at the nominal price of one dollar per bushel, would not pay; when the average yield might be put at fifteen bushels to the acre. I said, or conveyed the idea, that farmers situated as I was, could not compete with the wheat growers of the new States, where lands were so rich as to require no manure, and were worth but five to ten dollars per acre. Instead of discouraging the raising of wheat under any circumstances on land that was worth fifty dollars per acre, as Mr. S.'s article would imply, I recommended the raising of grain conditionally, to even the planters of Mississippi. It was likewise as unfair to make me appear as recommending the *raising of cattle exclusively;* I am sure I never intended, nor did I recommend to every farmer in Virginia or Pennsylvania, to compete with the breeders and graziers of Upper and Lower Sandusky, while I am free to say, there are some situations in Virginia and Pennsylvania, where cattle could be raised and fed as cheaply as in those favourite places. I do not dispute that there are, as H. S. says, "*well built*" cattle in Ohio; but he will please recollect, that these well built cattle are almost uniformly a cross from the imported Durham—thanks to the spirited gentlemen of Ohio, who at much pecuniary personal sacrifice, enriched their country by importations of this noble breed.

The extreme of what I recommended, as to the raising of cattle, may be found in the following extract, copied from the communication in question, which on reviewing, I find no occasion to change the opinion advanced therein; I feel satisfied of its correctness, in the qualified sense in which it was offered, to large farmers, living at a distance from a market. I said:

"Those who live at a distance from a market, and have large farms, should turn their attention principally to breeding and grazing; they should not separate these two branches. It is but too common for the grazier to depend upon the drover for his supply of cattle; in that way he can never be assured of the good feeding properties of the young cattle he purchases; better by far to select a good bull, the character of whose breed he can depend upon for easy feeding and early maturing, and progress steadily and patiently for a few years, and in that time he will have possessed himself of a breed that will show good proof of his attention and skill. I am persuaded that the improved Durham steers, under proper management, can be turned off regularly at four years old, to weigh from nine to ten cwt. If this be so, and I have not a doubt of it, what a saving in time and feed is here—nine to ten cwt. of fine beef in four years, against five or six cwt. of the hard feeding tribe in six to seven years. It appeared strange to me, as passing through several farming districts, to see such devotedness to raising grain, to the almost utter neglect of cattle. As far as the eye could reach from the road, nothing could be seen but grain, with here and there a corn-field; while a few stunted cattle and sheep might be seen running along the road sides, excluded from the fields, till they and the swine should have a harvest feast in the stubble field:—I speak now of some parts of Maryland and Pennsylvania—how short-sighted to neglect the cattle or to keep such a breed! not one in a hundred of them could, by any force of feeding, be made to weigh six cwt., or could be put in a condition, from the time it was taken up, at an expense short of the whole value of the animal when it came to be slaughtered."

* See page 116. † Page 155.

In corroboration of the opinion as to the profitableness of the Durham cattle, I may mention, that at the late Cattle Show in Chester county, Mr. Worth exhibited three steers of Durham blood, rising four years old, which had not yet been put up, and which then were laid at 1500 lbs., average. While viewing those fine steers, I remarked to an intelligent farmer near to me, that it would require but a little feed to make them bring one hundred dollars each. He replied, he thought they would bring that now. Their owner raises grain, corn, &c., but I am very sure he has raised nothing within the last three or four years, that will pay as well as his steers.

I sold last March a young Durham heifer for slaughter, at *one hundred dollars*, and am very certain, that from the time I took her up to feed, she did not consume fifteen dollars worth over and above the hay, and up to that time, less of pasture and hay, by a great deal, than a good animal of the common breed would have consumed; and which under any force of feeding, for the same period, would not have brought forty dollars at the same age, at the same market. Mr. Colman, in his account of the cattle at Smithfield, England, remarks of this breed, that "the dressed weight is stated at 650 lbs. to 800 lbs., at two to three years."

Recommending to H. S. a reperusal of my communication to General Richardson, and to farmers to whom it applied, a fair trial of the practice set forth,—

I remain, very respectfully,
Your obedient servant,
JAMES GOWEN.

Mount Airy, January 5th, 1846.

Planting the Cranberry.

In its wild or natural state, the cranberry is found in wet situations; in boggy grounds, in damp sandy lands, and on the low margins of ponds and streams. It will live and grow in comparatively dry soils; but it will not bear fruit without its roots are immersed in water at all seasons of the year.

Soil and situation.—The first object of the cultivator should be to select the ground for his *cranberry yard.* Every wet situation is not suitable. The soil must either be sand, mud, peat, or a mixture of these. There must be an abundant supply of water at all seasons of the year. If the ground is so situated that it can be flooded during the winter and spring, it is better; but it is not indispensable to success. The ground must be saturated with water, either from springs, running streams, or the drainings from higher land. On the low sandy margins of ponds the water is not much affected by the season, a sufficient supply of moisture will ascend, because the little spaces between the grains of sand act as so many capillary tubes for the ascent of the water; but when the margin is compact earth or unmixed peat, the dampness will not on that principle rise to the surface. In a selection of a situation for his cranberry yard, the cultivator must observe, first, whether the soil is of a loose, porous character, easily permeable to water; and second, whether there will be an abundant supply of water in the dryest seasons. If either of these two requisites is wanting, it will be useless for him to attempt the cultivation of the cranberry.

Planting and culture.—In boggy grounds it is advisable to retain the top sod, and cover the surface with beach sand if it can be easily procured; if not, with any sand that does not contain loam or surface soil. Till recently the common method of setting out the vines was, after the bog was covered with sand, it was marked off in parallel rows, like a field of corn, and sods of vines set from three to four feet apart each way. The usual method now is, to set in drills about two feet apart. The vines are separated, and only two or three upright stalks are set together, and are placed from six to twelve inches apart lengthwise of the drill. On wet and barren sandy land the expense of setting out the vines is much less than on bogs.

Cuttings from any part of the stem will strike root, and may be used where it is difficult or expensive to procure a sufficient quantity with roots. Where vines cannot be procured cranberries may be sown. It is not certain but that sowing will ultimately prove to be the cheapest and most expeditious method. We know of but one instance where cranberries were sown. That experiment was successful, and the ground is now thickly set with vines.

The best time for setting the vines, we are unable to state. The common practice has been to set them at any time when the weather would admit, from November to March. The spring we should think was preferable for sowing.

During the first season after they are set, vines frequently put forth numerous runners four or five feet long. The next year the runners put forth upright bearing stems, which produce cranberries on the third year. The vines do not usually become so thick set as to cover the ground before the fifth year.

Manure is worse than useless, and any vegetable or animal matter that will cause fermentation is injurious. As a general rule, the *more barren* the surface soil, the *better is it adapted* to the growth of the

cranberry. The growth of the grasses in such situations will be feeble, while the cranberry obtaining its sustenance mainly from water and the atmosphere, grows luxuriantly, and will ultimately *kill out* the *grasses* and obtain complete possession of the soil.

During the first three years, it is better to pull out the grasses than to wait for the cranberry vines to overcome them. Bushes must be carefully removed as fast as they spring up, because if suffered to grow they would do great injury. No other attention is necessary, excepting that good fences must be maintained around the vines to prevent the depredations of herbaceous animals.

Profits.—One bushel of cranberries to the square rod may be considered a good crop from vines that have been set five years, though we could cite particular instances in which three and four bushels have been gathered. Raising cranberries is like every other business in life; if a man judges rightly, is prudent and industrious, he will commonly succeed; but if he depends more on good luck than on good management, in nine cases out of ten he will fail. The cranberry fever is now running high among us, and almost every man you meet exhibits some symptoms of the disease. That fortunes are suddenly to be made by all who embark in this business we do not believe; but that large profits can be obtained from vines set in good situations, such as are above described, there is no doubt. The experiments of Capt. Henry Hall, Hiram Hall, and Peter Hall, of Dennis; of Captain Edward B. Hallett and Edward Thacher, of this town, and many others that could be named, prove that the raising of cranberries in good situations is a profitable business.

We know that some of the opinions which we have given in this article will militate against the theories of a few of our friends; but we cannot help it. We have carefully examined almost every cranberry bog and yard in the county, and have carefully compared the information thus obtained, and we know that our opinions are corroborated and supported by all who have had the largest experience in the business. We do not wish to discourage any from planting vines. Far from it. We say, go ahead. All we wish is to discourage men from running blindfold into a business, respecting which all the necessary information can be so easily and so readily obtained.—*Yarmouth Register.*

If you would have your hens lay through the winter, keep them warm—feed them liberally, with animal food to pick at, and see that they have access to calcareous substances.

For the Farmers' Cabinet.

Thaer's Principles of Agriculture—Mineral Manures.

In these remarks on manures there is one thing that constantly forces itself on the mind; the extreme difficulty of deciding as to whether we are right in the kind of manure that we are using for our land. Where land is in good condition this perplexity does not occur, or not to any great extent; but where land is out of order, or where we wish to make it produce more than it has yet done, it requires great judgment and experience to enable one to make up his mind how he shall proceed. We ask ourselves what we shall do, and when we have decided as to this, we then ask, have we the materials with which to carry out our project. Both of these questions are of serious import to the farmer—the one taxing his judgment and powers of reflection—the second all the resources of his experience. The art of manuring appears to consist in returning to the soil what has been taken from it, and in such proportions as to preserve the proper relations of all its ingredients. There is no crop that we can sow, that does not in some degree disturb this relation;—to restore it, to renew the condition that has been so altered, is the first and chief difficulty in the art of cultivation. Necessity obliges us to attempt this restoration, or else our land will be to us like the individual who lives upon his capital, and who has nothing to look forward to as this melts away, but distress and poverty. Where land is rich naturally, it is exhausted with difficulty, and easily brought up if it get out of order; but let us watch the farmer who is the unfortunate owner of a bad soil in bad condition, and we shall be able to form an idea of the expense and labour, and attending efforts expended on that which nature itself has frowned on; it is like an unhappy pedagogue endeavouring to fill the vacant and sterile brain of some dull specimen of the human family—it will require the exhausting toil of half a lifetime, and even then leave little to compensate for the labour, and be always liable to a relapse. The possessor of such a soil should have the age of Methuselah if he is to see the results of his labours; one-fourth of the life of this patriarch would have passed before he saw much good come from his two hundred years of hard work. Even on good soils, but out of order, a man may grow old before it is brought into a fertile condition. It has been our fortune to see land, where, to one coming from a more fertile country, starvation would appear a necessary consequence; yet off such land is fed many a

hardy and industrious family, and from the country where such land abounds, issues many a fine and elevated character, who carries to the furthest limits of this continent the arts of life and the elements of civilization, with an energy of character, a resolute perseverance, and a spirit of enterprise, with which those from more favoured regions cannot compare or compete. If we were to carry out these ideas, they will bring us to that point in which it will be necessary for every farmer to be a man of science:—of course a most absurd conclusion and expectation, not that it would not be much better for the interests of agriculture that they were so, or that agriculture would not be a much higher art if they were so; but that it is absurd to expect such a thing. There is no profession or occupation where each member is of the highest order of mind, and no one where much the larger portion are not ignorant of the principles of the art they profess and practice. The mass of men are followers and imitators—it is the few who are great and do great things; the rest are mere labourers on the already worn and beaten track of life. It is not therefore to be supposed, that science is to direct the man who has the evil fortune to possess land that is out of order, or that he will refer to chemical laws for assistance, consult Liebig, or talk about phosphates, silicates, carbonates, ammonia, alumina, geine, or humus, or use any other learned and vexatious catalogue of terms; but he will turn from these with disgust, drop science and all its beautiful principles, and look for aid to his dung-heap or his lime. He knows that the art of retrieving a worn-out soil is to restore to it what it has lost, but how is he to know what it has lost; or if his land contain an excess of some one thing, as clay or sand, he may be aware that the proper mode of proceeding is to correct this excess, by applying something of an opposite nature. Or if the soil is deficient in the earths, or salts, it may be easy to know and apply the remedy; and also if the land has been exhausted of its humus or vegetable mould. The difficulty does not consist in finding the remedy, but in knowing when it is wanted; or in other words, the great majority of farmers would be unable to tell what was the reason their land did not yield well, nor could they conjecture or discover the cause, unless by an analysis of the soil. And how many are there, who would not rather trust to his own opinions, and to his own meagre means, than to go to some chemist and ask what was the matter with his land, and endeavour to find out why it failed in producing wheat or corn, or any other crop. And in this way be enabled to make an immediate application of the remedy. There are, no doubt, peculiar influences exerted by every agent that we employ—a fact that renders it doubly important for us to know how we shall proceed, and whether we are on the right track when we commence our work.

"But what does the soil contain, and what are the components of the substances used as manure? Until these points are satisfactorily determined, a rational system of agriculture cannot exist." These are the words of Liebig on this point, and there is no man who has anything to do with land, who does not feel ther force. With these general remarks, we proceed to take up Von Thaer on "Mineral Manures," the last part of the chapter on "Manuring the Soil." He opens with some observations that go to prove the necessity that we have urged of knowing the nature of our soil and its wants. It is on this knowledge that is founded the whole art of manuring and bringing up land—the art of correcting the defects of a soil so as to make it productive. We find, for example, that our land contains too much clay or sand, or too much of some one of the elementary earths, or even of humus, or on the other hand, too little of some of those ingredients of a soil that make it valuable for cultivation; in other words, that the just balance between its component parts is impaired. In these circumstances we cannot expect our land to be as productive as we wish, but how are we to correct the evil? The most natural mode is to introduce into the soil something of an opposite nature to that which is in excess, and to add to it something of the same character as that which is deficient. This art of improving nature, and attempting to adjust her deficiencies is a delicate matter, and as we have already said, requires experience and the exercise of sound judgment to prevent failure. "It is hardly possible," says Von Thaer, "to correct the defects of an argillaceous and tenacious soil with sand, or those of a sandy soil with clay, excepting in those cases in which the kind of earth necessary to effect the required amelioration is found in the inferior stratum of the soil to which it is to be applied." In that case it may be done by deep ploughings, so directed, however, as not to bring too thick a layer of the virgin earth to the surface; but where the earth has to be brought from a distance, or raised from a great depth, then we have to calculate the expense, which may be so great as to make it an absurd undertaking. But after having done this, and resolved to attempt it, we then have this fact for our consideration, "that it is exceedingly difficult to effect a

thorough combination of sand and clay, unless these substances are of a marly nature, or contain calcareous particles: where such is not the case, these earths cannot be sufficiently divided to incorporate with each other."

The mode of mixing these soils is by repeated ploughings—the two or three first as superficial as possible—then harrowing, and breaking the clods as soon as they are dry; also by mixing dung or lime with them, or by sowing plants whose roots have sufficient strength to penetrate the clods, the operation may be accelerated; but after going through all this labour, it seems that we must wait before any beneficial effect is produced.

Another mode of ameliorating argillaceous soils, not unfrequent in Europe, is by paring and burning; this process brings them nearer to a sandy soil than any other, by destroying the coherence and tenacity which make clay so difficult to manage.

On soils deficient in consistency and disposed to retain moisture, Von Thaer speaks very highly of sand, as being by far the best dressing, as by penetrating the mould and filling up its spongy texture, it, without affecting the richness of the soil, made it much more manageable in the cultivation. It should be spread on land covered with grass; it then, according to his experience, "produces a more beneficial effect than the most energetic manure; in fact, manure would be rather injurious, than otherwise, to soils of the kind of which we are now speaking."

A. L. E.

(To be continued.)

For the Farmers' Cabinet.

Fowls.

To the Editor,—I have been a subscriber to the Cabinet, I believe, from its commencement, and have contributed but little to it, except, perhaps, by adding to its circulation, by speaking of its value. Being no writer, I have left it for those who are more competent; I find many inquiries on its pages on very interesting and instructive subjects. In the last number a writer is inquiring about fowls, which, perhaps, has prompted me to query on the same subject. Your citizens are fond of a fine appearance on the farmers stalls, and good fat poultry contributes much to that appearance. I have had the common, the Poland, Creole, and Pheasant stock of fowls, and as I want to have the most profitable, for the family and stall, will some writer inform where the Game stock of fowls can be obtained, and whether they are good layers, of a round plump form, and if hardy; and if they are peaceable when running at large! The best stock of all kinds should be obtained by farmers; I am very fond of having a large flock of poultry about my buildings, but I wish to have those that will pay for the grain they eat, which is not a little; and above all, when prepared for the market, I wish to have a breed that will show their feeding. Also the best manner of winter keeping, whether to be housed or running out is best; what is the best kind of food; and if they require animal food when the ground is frozen, or covered with snow! These several questions answered, would gratify a Delaware county farmer, who wishes the welfare of the Cabinet and its editor.

Where can clean orchard grass seed be obtained, and at what price per bushel; when the proper time of sowing, and how much per acre!

My experiment with the poudrette last summer, was to put a small handfull in the hill with the corn, all covered together, but it did not show itself in the corn—my corn was frozen down, and after it grew up, it was cut down with the worms, which, perhaps, operated against it.

My neighbour's field showed the effects of the poudrette. The corn was more rank than his compost made it, side by side, and the yield was better when husked; his soil is similar to my own, and why such a difference, I know not—his land has been more cropped and less manured; but strange as it is, I have often seen better corn on thin land than on that which is thought to be good, and which has apparently received equal care. If the next number of the Cabinet shall have a column to spare for these several interrogatories, I believe many farmers will be benefitted, and I shall be obliged.

Respectfully, A. G. H.

Our friend A. G. H., is correct when he says Philadelphians like a fine appearance on the farmers' stalls; and we have been partly ready to conclude that some of our farmers are little aware of the difference it makes, both in the readiness of sale and in the prices obtained, whether things look nice, or otherwise. In scarcely any thing is there so great a contrast as in poultry, unless it be in veal. When did the farmer ever go home and complain to his wife of dull prices, when she had freighted him with plump and fat poultry, nicely picked and handled throughout, as if she had always a clean apron on? Good poultry, well handled, like good fruit, will always bring good prices. But how can it be supposed that miserable skeletons of chickens, murdered in the handling, and looking, when in market, as if they had been thrown pell mell into a basket, and then set on by the market-man;—how can it be supposed these will bring a price to pay for rearing them?

The questions asked about fowls, the editor cannot answer; and if he could, it would be better for A. G. H. to come here and buy *Bement's Poulterer's Companion*, which will tell him all about it, and which will cost him but $1 25. Every raiser of fowls should have that book.

Our friends Coates and Powell, both in Market street, and whose advertisements are in the Cabinet, will no doubt, furnish good orchard grass seed, and tell when to sow it. The editor has preferred sowing it in the spring.

The accounts of *poudrette* have very generally given it full credit for making the corn grow. For this crop it must be a cheap manure. We would not advise our correspondent to rely upon "thin land," for raising a full crop of corn, in preference to that which is thought to be good." Indian corn delights in a rich soil. In a very dry summer, however, corn will suffer less in a thin lightish Jersey soil, than in land that is full of manure.—Ed.

Officers of the Philadelphia Ag. Society.

At a stated meeting of the Philadelphia Society for promoting Agriculture, held on the 7th inst., the following named gentlemen were elected officers for the ensuing year, viz:

President—James Mease, M. D.

Vice Presidents—Kenderton Smith, Algernon S. Roberts,—in place of James Gowen, declined.

Recording Secretary—Aaron Clement.

Assistant Recording Secretary—P. R. Freas.

Corresponding Secretary—A. L. Elwyn, M. D.

Treasurer—George Blight.

Curators—Isaac Newton, Samuel C. Ford.

Librarian—Aaron Clement.

Jan. 8th, 1846.

Productive Farm.

To the Editor of the Farmers' Cabinet:—

Mr. Israel Lamborn, of Marshalton, Chester county, informed me a few weeks ago, that his farm of twenty-seven acres of land, had produced the past season, as follows, viz.: one hundred and fifty bushels of corn, thirty bushels of wheat, and twelve tons of hay, vegetables for family, &c.; that he fatted twelve cattle of 500 lbs. each, kept six large hogs, two horses, and two milch cows; and had also received for pasture, from drovers, $40.

This may be considered as another, and a very strong evidence of the productiveness of small farms, when properly cultivated and kept in high condition. The principal part of Mr. Lamborn's farm being in grass, the labour on it cost but little. There is, perhaps, no part of this country where land is better adapted to the growth of grass and grain, than Chester county.

Aaron Clement.

Philadelphia, Dec. 28th, 1845.

Mildew.

Very few seem to be aware of the nature of that substance called mildew. We copy, says the American Farmer, an abstract of a lecture by Professor Lindley, of England, on the subject:

"Mildew is often confounded with blight, honey-dew, &c., but it is a distinct substance, and peculiar to peculiar tribes of plants. It generally appears on the leaves or stems, in the form of *red, white and black spots*, as a number of minute projections, or frosty incrustations, or a brownish powder, spreading more or less rapidly, till the plant is destroyed. Mildew is fungi of different kinds, and these are divided into three classes: 1st, those which grow or lie on the surface of leaves: 2nd, those which are formed in the interior of the stem or leaf, and produce when ripe; and third, those which only attack the roots. All these seldom appear but in autumn.

"The first of these fungi injure the plant by preventing its respiration. One of the most common of the fungi, which attack the common cabbage, is the *Cylindrosporium concentricum*, and they have the appearance of small white patches or specks of frosty incrustation. The mildew which attacks rose-bushes, and many other flowering shrubs, is a kind of Uredo, so called, from *Ura*, to burn or scorch; for it gives to the plant attacked the appearance of being scorched. The fungus called *Acrosporium Monilioides*, resembles, when magnified, a string of beads, and consists of a number of globules which, when ripe, fall, take root, and form fresh strings, or necklaces. Sometimes tufts of these appear, fixed to stalks, and are then called *Aspergillus*, from their fancied resemblance to the brushes used for sprinkling holy water. The superficial mildew which infects the onion, and is fatal to that plant, is called *Botrytis*, or bunch of grapes. The bean and pea have a superficial mildew—*Uredo Fabæ*—which spreads along their leaves like white roots curiously interlaced.

"The second class of fungi which spring from the interior of the leaves and stems, are the most fatal. They appear in a sort of bag or case, supposed to be formed of the cuticle of the affected leaf. These attack the oak, pine, and other forest trees; the

genus is the *æcidium*. The *æcidium pine*, found on pine trees has, when magnified, the appearance of a number of nine-pins. When ripe it emits a bright orange coloured powder. A mildew of this kind attacks barley, and is very injurious. It is vulgarly called pepper brand. The *Urego Segetum*, or smut, is destructive not only to barley, but to wheat and oats. It destroys the grain, which is converted into a kind of jelly, and attacks the leaves and stems. The *puccinia graminis* which attacks corn, is formed in the interior of the stock, and, when ripe, bursts forth into clusters, like bunches of grapes, of a dark brown colour. The *ergot* on rye is a well known and destructive species of mildew. It grows out of a spike of grain, like a prolonged kernel; is long, horney, and cartilaginous. It originates in the centre of the stem. It affects maize, and various species of grass.

"The principal fungi of the third class are two, which attack the roots of plants, and both resemble truffles. One of these (*Rhizoctonia Crocorum*) attacks crocuses. It is called by the French *Lamort du safran*, and soon destroys the whole crop. The other fungus (*Periola tomentosa*) is found on the potatoe, lucerne, &c. It turns the roots to a purplish hue. They are both propagated by spawn or fibres, which cling round the roots. All these fungi propagate rapidly, requiring only twenty-four hours to come to maturity. One mushroom will propagate 250,000,000. Plants, Dr. L. says, are generally most affected by superficial fungi after a long drought. *Red plants* are said to be more liable to mildew than any other. Mr. Bauer has found that steeping grains of corn in lime water, will cure, or at least, prevent the spread of the internal mildew. There appears, however, as yet, to be no cure for mildew in the roots, but by forming a deep trench round the infected plants, and cutting off all communication between them and the rest of the field."

Humus.

The name usually given to this substance is "mould." This term has been misinterpreted by many persons, who have understood it to mean the layer of vegetable earth, and not a particular portion of its constituent parts. Several very clever agricultural writers have fallen into the same error; and thus the obscurity which enveloped this part of the science has been increased. It is on this account that I have adopted the word *humus*, about which there can be no mistake. In a scientific point of view the term "earth" is not at all applicable to this substance; properly speaking it is not an earth, and has only been called so on account of the pulverulent form.

Humus is always more or less a constituent part of the soil. The fertility of the land depends entirely upon its presence, for, if we except water, it is to this substance alone in the soil that plants owe their nutriment. It is the residue of animal and vegetable putrefaction, and is a black body; when dry it is pulverulent, and when wet has a soft greasy feel. It is varied in its qualities and composition according to the substances from which it has been formed, and the circumstances under which the putrefaction or decomposition took place; there are, however, certain properties which are inherent to it, and in general it is similar in itself. It is the produce of organic power—a compound of carbon, hydrogen, nitrogen, and oxygen, such as cannot be chemically composed; for in inert bodies these substances only enter into simple combinations of some two amongst them, and do not unite altogether as is the case here. Besides the four essential elements of humus, it contains other substances in smaller quantities, viz., phosphoric and sulphuric acids combined with some base; and also earths, and sometimes different salts.

Humus is the product of living matter, and the source of it. It affords food to organization; without it nothing material could have life, at least the most perfect animals and plants could not exist; and, therefore, death and destruction are necessary and accessory to the reproduction of animal and vegetable life. The greater the number of living creatures, the more humus is produced, and, consequently, the supply of the elements for the nutrition of life is increased. Every organic being in life appropriates to itself a daily increasing amount of the raw materials of nature; and these, after having been digested, resolve into humus, which increases in proportion as men, animals, and vegetables are multiplied in any spot on the surface of the earth. It is, however, diminished by the processes of vegetation, wasted by being carried into the ocean by water, and by being conveyed into the atmosphere by the agency of the oxygen contained in the air, which unites with and gradually converts it into a gaseous matter.

We have only to observe the progress of vegetation upon naked rocks, in order to understand the history of humus from the very beginning of the world. At first, only lichens and mosses are found there, from the

decomposition of which more perfect plants derive their nourishment; these, in their turn, die and augment the mass of mould by their putrefaction: and thus at last a bed of humus is formed, capable of affording nourishment to the largest trees.—*Thaer's Agriculture.*

THE FARMERS' CABINET,

AND

AMERICAN HERD-BOOK.

PHILADELPHIA, FIRST MONTH, 1845.

It will be found that we have again in this number recurred to *Colman's Tour*, in continuation of the article relative to the Smithfield market, London. The interest is well kept up.

In a letter from the publisher, received a few weeks ago, he says, "No 5 is in press, and may be expected about the 20th of January. Mr. Colman is busily engaged in writing No. 6." A report was circulated in the papers some time ago, that H. Colman had returned to this country:—this was incorrect; he is still in Europe. As soon as No. 5 is received it will be forwarded to our subscribers. Single Numbers are sold, and subscriptions received.

Some unknown friend has kindly forwarded a neat copy of Josiah Quincy, Jr's, Address before the N. Y. State Agricultural Society, at Utica, in the Ninth mo. last. We shall make use of it in next Number of the Cabinet.

Dr. Fitch, of Salem, New York, will accept thanks for his valuable *Essay on the Wheat Fly, and some species allied to it*, as it originally appeared in that excellent work of Drs. Emmons and Prime, the *American Quarterly Journal of Agriculture and Science.*

The December Number of *Skinner's Farmers' Library* is rich in valuable matter, and we wish its enterprising editor and publishers every success.

The quantity of rain and snow which fell in the 12th month, 1845, was almost four inches. .... 3.96 in.

Penn. Hospital, 1st mo. 1st, 1846.

Winter set in early. Old and observant people say the past month was the coldest 12th month that has occurred for twenty years.

☞ SHORT ADVERTISEMENTS. ☜

The subject matter of which, may correspond with the agricultural character of this paper, will be inserted at the rate of one dollar for each insertion of ten lines or less; and so in proportion for each additional line. Payment in advance.

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October 15th, 1845. 6t.

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M. S. POWELL.

Philad., March 15th. tf.

Poudrette.

A valuable manure—of the best quality, prepared in Philadelphia, for sale at the office of the Farmers' Cabinet, No. 50, North Fourth Street, or at the manufactory, near the Penitentiary on Coates' street. Present price, $1 75 per barrel, containing four bushels—$5 for three barrels—$15 for ten barrels, or thirty cents a bushel. Orders from a distance, enclosing the cash, with cost of porterage, will be promptly attended to, by carefully delivering the barrels on board of such conveyance as may be designated. The results on corn and wheat have been generally very satisfactory. Farmers to the south and in the interior, both of this State and of New Jersey, are invited to try it.

JOSIAH TATUM.

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